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(Continued on Inside Back Cover)

THE JOURNAL OF

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THE EFFECT OF ORGANIZATIONAL AIDS ON COMPREHENSION AND RETENTION[1]

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Many educators assume that an overview or preview of the main ideas in a printed passage will have a beneficial effect on comprehension. For example, one of the essential steps in the study technique developed by Robinson (7) includes a survey of the material prior to reading it. The same idea has also been expressed in terms of the 'whole-part-whole' method of learning. This method assumes that an individual will learn more efficiently if he groups the major ideas in order to get a clear picture of the structure of the material before beginning to learn the details. After mastering the details, the individual again considers the learning material as a whole.

Intuitively, it seems that an overview of learning material prior to its detailed consideration should aid comprehension. One might consider comprehension of textbook material as a continuous process of outlining or coding minor points under major points. Undoubtedly, people cannot retain great masses of information without some system for organizing it into coherent bodies or groups. A simple example of this is the retention of a telephone number

[1] This experiment was made possible by Contract AF 18(600) 335 issued to the Division of Communications at the University of Illinois, and it was monitored by the Human Resources Research Institute. The authors wish to acknowledge the help of Dean Wilbur Schramm, Dr. C. E. Swanson, Mrs. Mary Snoden, and Mr. Herbert Rabin.

such as MA 7168. It is much more difficult to remember this number if it is considered as six discrete elements, M-A-7-1-6-8, rather than three main elements such as Main-71-68 where each main element is composed of two subordinate elements.

If this reasoning is valid, written materials with a clearly indicated organization should be more easily comprehended than materials without a clearly indicated organization. A number of methods have been used to indicate the organization of written materials. These methods have met with varying degrees of success.

There has been very little research directly related to this problem. The few studies that have appeared in the literature have in most cases been poorly designed so that clear cut conclusions cannot be drawn. McClusky (*5*), using college students as subjects, conducted an experiment to determine the effect of preliminary skimming on reading. The groups which did the preliminary skimming of headings and summaries tended to read faster than the control group. However, the controls and statistical analysis were inadequate.

Questions at the beginning, end, and within material have also been used to emphasize the main ideas. Holmes' (*2*) and Washburne's (*9*) studies suggest that the use of questions to guide the reader will facilitate comprehension. Unfortunately, clear cut conclusions cannot be drawn from these experiments. Robinson and Hall (*8*), in a study using materials with and without headings, found no differences in speed of reading and comprehension.

Dearborn, *et al* (*1*) suggest, on the basis of a study involving college students, that manuscripts be prepared in the following manner in order to facilitate reading speed and comprehension:

1) indicate the word in each sentence, which would be stressed when read aloud, by capitalizing it,

2) break sentences up into units of thought and

3) indicate important sections by overtyping on them. These suggestions emphasize the pattern or structure of the material.

The present study was concerned with different methods of indicating the organization or structure of printed material with reference to the differential effects of these methods on immediate and delayed retention. Outline, underlining, summary, and headings were the four methods used to indicate the organization of the material. This study was concerned with superimposing organiza-

tional cues on already written material. It did not consider training of individuals to organize material nor did it consider the rearrangement of the material itself.

METHOD

Experimental Materials.—The printed material used in this study consisted of two passages selected from United States Air Force Extension Course Institute volumes. One passage of approximately 2600 words described some of the elementary principles of aerodynamics. The other passage of approximately 3800 words considered the ideology of international communism. Two different kinds of passages were intentionally selected in order to provide a broader base from which to generalize.

Criterion Measures.—Two multiple-choice comprehension tests (Aero A, Aero B, Comm A, Comm B) were constructed for each experimental passage. Forms A and B were approximately equivalent for each passage. An effort was made to construct items which measured understanding of concepts and the ability to make inferences from general principles. The preliminary aerodynamics tests had thirty-six items and the communism tests had thirty-eight items.

The tests were pretested on a college freshman population and an item analysis was conducted using the upper and lower twenty-five per cent. The items which did not discriminate at the five per cent level were either eliminated or revised. Distractors which did not function were also revised and a few new items were added to make a total of forty items per test.

After the experiment was conducted, the difficulty of the items and the reliabilities of the tests were determined. The item difficulty ranged from twenty per cent to eighty per cent with a mean difficulty of approximately fifty per cent. The reliability of the tests is reported in Table 1.

Since there were only two forms of each test, Form A was used as both a pretest and delayed test. Consequently two reliability coefficients are reported for Form A of the tests.

Experimental Subjects.—The subjects used in this experiment consisted of nine flights of basic trainees at Sampson Air Force Base. All the subjects had been inducted into the Air Force less than two weeks prior to the experiment. The Air Force Qualifica-

TABLE 1.—SPLIT-HALF RELIABILITY (CORRECTED FOR ATTENUATION) OF THE COMPREHENSION TESTS

Tests	N	r (corrected)
Comm A (Pretest)	465	.62
Comm A (Delayed Test)	407	.70
Comm B (Immediate Test)	464	.76
Aero A (Pretest)	467	.61
Aero A (Delayed Test)	405	.75
Aero B (Immediate Test)	466	.85

tion Test (AFQT) percentile ranks for this sample yielded a mean of 55.3 and a standard deviation of 28.9. Number of years of education yielded a mean of 11.0 and a standard deviation of 1.7.

Experimental Versions.—The methods used to indicate the organization of materials were as follows: (a) an outline at the beginning of the passage, (b) a summary at the beginning of the passage, (c) a summary at the end of the passage, (d) underlining of main points, (e) headings in statement form, and (f) headings in question form.

The steps followed in constructing the experimental versions were:

1) The 'main points' were identified in each passage. A 'main point' was defined as follows: the definition of a word if understanding of the word was fundamental to understanding the passage, a statement of principles, a generalization, a proposition from which other things could be deduced, or a deduction or conclusion made by the author.

2) An outline, based upon the identified main points, was constructed. Detailed items such as examples, illustrations, and analogies were not included. The statements in the outline were made as brief as possible without distorting their meaning.

3) A summary was written. This summary contained approximately the same information as the outline.

4) The main points of each passage were underlined. An attempt was made to underline the same points as those included in the outline.

5) Headings were inserted in each of the passages. An attempt was made to keep the question and statement forms parallel and to base the headings on the outline. The headings indicated what

was to be discussed in the succeeding sections, but did not summarize the material. In this respect the headings differed from the other treatments.

The experiment was designed as a 3 × 3 × 2 × 2 factorial experiment. The design permits the comparison of all possible combinations of the organizational aids. This resulted in thirty-six different versions for each passage. A brief statement of each version is as follows:

1) Summary—beginning
2) Summary—end
3) Outline
4) Underlining
5) Headings—statements
6) Headings—questions
7) Headings—questions; summary—beginning
8) Headings—questions; summary—end
9) Headings—questions; outline
10) Headings—questions; underlining
11) Headings—statements; summary—beginning
12) Headings—statements; summary—end
13) Headings—statements; outline
14) Headings—statements; underlining
15) Summary—beginning; underlining
16) Summary—beginning; outline
17) Summary—end; underlining
18) Summary—end; outline
19) Outline; underlining
20) Headings—statements; summary—beginning; underlining
21) Headings—statements; summary—end; underlining
22) Headings—statements; summary—beginning; outline
23) Headings—statements; summary—end; outline
24) Headings—statements; outline; underlining
25) Headings—questions; summary—beginning; underlining
26) Headings—questions; summary—end; underlining
27) Headings—questions; summary—beginning; outline
28) Headings—questions; summary—end; outline
29) Headings—questions; outline; underlining
30) Summary—beginning; outline—underlining
31) Summary—end; outline; underlining
32) Headings—statements; summary—beginning; outline; underlining
33) Headings—statements; summary—end; outline; underlining
34) Headings—questions; summary-beginning; outline; underlining
35) Headings—questions; summary—end; outline; underlining
36) No organizational aids

TABLE 2.—TREATMENT MEANS FOR THE COMMUNISM IMMEDIATE TEST AND PRE-TEST

N = 12 per cell

	Underlining				No Underlining				Row Mean	
	Outline		No Outline		Outline		No Outline			
Headings—Statement										
Summary—beginning	16.42	19.67	15.33	18.58	14.67	17.50	15.33	16.92	15.44	18.17
Summary—end	16.00	18.00	16.83	20.58	15.17	16.17	18.00	22.08	16.50	19.21
No Summary	15.82	17.17	15.25	17.33	15.17	18.50	16.00	16.42	15.56	17.35
Headings—Question										
Summary—beginning	14.92	17.25	15.83	16.83	16.17	17.58	14.25	16.50	15.29	17.04
Summary—end	15.92	17.00	15.50	20.50	15.83	18.08	17.58	18.58	16.21	18.54
No Summary	17.67	18.00	16.00	21.00	17.16	19.67	14.25	15.08	16.27	18.44
No Headings										
Summary—beginning	16.50	19.42	14.83	16.33	12.75	16.83	14.75	17.08	14.71	17.42
Summary—end	17.42	18.25	15.83	17.17	15.58	17.92	18.33	21.83	16.79	18.79
No Summary	15.25	15.67	17.17	19.08	14.08	16.67	16.58	17.17	15.77	17.14
Column Mean	16.21	17.82	15.84	18.60	15.18	17.66	16.12	17.96	15.84	18.01

NOTE: The first figure in each cell is the pre-test mean; the second figure is the post-test mean.

See Table 2 for a graphical representation of the experimental design.

PROCEDURE

The entire experiment was administered as part of the Air Force Research and Development testing program in which all basic trainees were required to participate. The experiment consisted of three phases: pre-testing, immediate testing, and delayed testing.

Pre-testing.—All subjects completed Form A of the communism and aerodynamics comprehension tests. No time limit was placed

on the completion of the tests. This phase of the experiment permitted a rigorous evaluation of the subject's previous knowledge of the experimental passages. This information was used to adjust the results of the immediate and delayed testing.

Immediate-testing.—Eight days after the subjects had completed Form A of the aerodynamics and communism tests, they were recalled and given the following materials:

1) Each subject was given randomly one of the thirty-six versions of the communism passage. The subjects were then instructed to study the passage for a maximum of thirty minutes and informed that they would be tested on the material. They were also told that they need not use the full thirty minutes for studying the material. However, if they stopped studying before the thirty minutes were up, they were asked to record the time on their test answer sheets.

2) After studying the material, the subjects were given an unlimited amount of time to complete Form B of the communism tests.

3) Upon completion of the above two steps, all subjects were given a ten-minute break. After the break, the same procedure was followed for the aerodynamics passage.

This phase of the testing provided two sets of data: immediate retention scores and time devoted to studying the passages.

Delayed-testing.—Six days after the immediate testing, all subjects were administered Form A of the aerodynamics and communism tests. They were allowed an unlimited time to complete the test. This phase provided delayed retention scores.

RESULTS

The experimental design used in this experiment permits the testing of several hypotheses. It would be possible to test the significance of the four main effects (reading, summary, underlining, outline), six second order interactions, four third order interactions, and one fourth order interaction. However, Kendall (*4*, p. 223) suggests that a factorial design be first regarded as a simple analysis of variance in order to test the general hypothesis that no difference exists between the groups. If significant results are obtained, then further analysis is warranted. In this experiment, a simple analysis of variance and covariance was conducted regarding the cells as thirty-six groups receiving different treatments or versions

of the material. In all instances, further analysis of the data did not seem warranted. All the simple analysis of variances were non-significant at the five per cent level and an inspection of the tables indicated that mean gains between the various treatments were extremely small.

The assumption of homogeneity of variance was tested for each analysis using Bartlett's test, Johnson (*3*, pp. 83–84). In no instance was the null hypothesis of equality of variances rejected at the one per cent level. The assumption of normality of distribution was checked by an inspection of the plotted data. The data satisfactorily conformed to this assumption.

In order to permit analysis of the results as a factorial experiment, a few subjects were eliminated for some of the analysis to give equal number of individuals per cell. This was done by a random procedure.

Immediate Retention.—The analysis of the differences between the experimental versions for the communism passage is presented in Tables 2 and 3. Table 2 contains the pre-test and immediate test scores for each of the experimental versions. Table 3 contains the results of the analysis of variance and covariance. It is clearly evident from an inspection of these tables that the differences between the experimental versions do not approach significance.

A similar analysis was performed on the results for the aerodynamics passage and, again, the differences were not significant at the five per cent level of confidence. Tables containing the data for this analysis and the remainder analyses considered have been omitted because similar procedures were employed.

TABLE 3.—ANALYSIS OF VARIANCE AND COVARIANCE OF THE COMMUNISM IMMEDIATE TEST SCORES WITH PRE-TEST SCORE HELD CONSTANT

Source of Variation	D.F.	S.S.		Cross Products	Adjusted Analysis				
		Pre-test	Immediate Test		D.F.	S.S.	M.S.	F	P
Between	35	1186.78	699.76	646.98	35	610.10	17.43	—	>.05
Within	396	13026.17	8550.90	6346.84	395	8315.28	21.05		
Total	431	14212.95	9250.66	6993.82	430	8925.38			

Bartlett's Test of Homogeneity of Variance: chi-square = 47.808; df = 35; P > .05.

Delayed Retention.—The statistical analysis for the delayed testing was identical to that for the immediate testing. No significant differences were found for either the communism or aerodynamics passages.

Time Devoted to Studying the Passages.—An analysis, similar to that described previously with the exception that analysis of covariance was not involved, was made to determine if subjects devoted more time to some experimental versions than others. This was a likely possibility as the reading material varied somewhat from version to version. For example, contrast the number of words in the version consisting of an outline and summary with versions having no outline or summary. No significant differences were found for either passage.

DISCUSSION

The consistency of the results, i.e., no significant differences, greatly simplifies any discussion. Clearly, one can say that the organizational aids used in this experiment did not effect comprehension as measured by the comprehension tests. Of course, one can only generalize to the population studied and the kinds of materials used.

Under different circumstances, organizational aids might very well effect comprehension. There are unlimited possibilities. A different population, e.g., college students, might respond favorably to organizational aids, or perhaps organizational aids are only useful for certain kinds of materials. Also training individuals to use the aids might result in a differential effect of the treatments used in this study. According to Robinson (*6*), many individuals do not study efficiently.

It is also possible that the experimental materials were not suitable for this particular population. The passages and tests may have been too difficult, although this seems unlikely in view of the item analysis and mean scores of approximately fifty per cent of the total possible score. In addition, the test items were carefully constructed.

SUMMARY

Two passages of material, one on international communism and the other on the principles of aerodynamics, were selected from Air Force correspondence courses. These passages were revised to in-

clude the following organizational aids: (1) an outline at the beginning of the passage, (2) a summary at the beginning of the passage, (3) a summary at the end of the passage, (4) underlining of main points, (5) headings in statement form, and (6) headings in question form. Thirty-six different experimental versions, using all combinations of the organizational aids, were used for each passage.

Two comprehension tests, Form A and B, were constructed for each passage. An item analysis was conducted and the split-half reliabilities determined.

A sample of Air Force basic trainees was selected as subjects. The subjects were first given a pre-test on the experimental materials; eight days later, they studied the passages and completed an immediate test of comprehension. Six days after the immediate testing, they were administered a delayed-test. The subjects also recorded the amount of time devoted to studying the passages.

Analysis of variance and covariance was applied to the results. The pretest scores were used in the analysis of covariance. No significant differences were found between the organizational aids for either immediate or delayed retention. No significant differences were found between time devoted to studying the different versions.

An explanation of these findings was difficult inasmuch as an unlimited number of explanations might be correct. Alternative explanations can only be determined by further research.

REFERENCES

1) Walter F. Dearborn, Philip W. Johnston, and L. Carmichael. "Improving the readability of typewritten manuscripts." *Proceedings of Nat. Acad. Sci.*, Wash., 1951, 37, 670–672.

2) E. Holmes. "Reading guided by questions versus careful reading without questions." *School Rev.*, 1931, 39, 361–371.

3) P. O. Johnson, *Statistical Methods in Research*. New York: Prentice-Hall, 1949.

4) M. G. Kendall, *The Advanced Theory of Statistics*. Vol. 2. London: Charles Griffin, 1948.

5) H. Y. McClusky. "An experiment on the influences of preliminary skimming on reading," *J. of Educ. Psych.*, 1934, 25, 521–529.

6) F. P. Robinson. "Study skills of soldiers in ASTP," *School and Soc.* 1943, 58, 398–399.

7) — — —. *Effective Study*. New York: Harper & Brothers, 1946.

8) F. P. Robinson, and P. Hall. "Studies of high-level reading abilities." *J. Educ. Psychol.*, 1941, 32, 241–252.

9) J. N. Washburne. "The use of questions in social science material." *J. Educ. Psychol.*, 1929, 20, 321–359.

A STUDY-ATTITUDES QUESTIONNAIRE FOR PREDICTING ACADEMIC SUCCESS

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Publication of more than a hundred how-to-study manuals since 1926 attests to the strong interest of educators in the rôle of study habits and attitudes in determining academic success. However, the prolixity of rules found in these pamphlets and books has often lacked pertinent scientific support. Laycock and Russell (*7*), in analyzing thirty-eight how-to-study manuals published between 1926 and 1939, compiled a list of three hundred and thirteen items that were mentioned four or more times in the various manuals. Examination of the individual items revealed that there was direct disagreement in some areas as to the best techniques to use in studying. In an investigation of 1250 school children, Cuff (*3*) discovered that many of the seventy-five most commonly recommended principles of study were reportedly being followed more exactly by the inferior than by the superior students! Although such results may be due in part to inaccurate reporting by the students of their study habits, the urgent need for sound empirical investigations of the work methods adopted by good and poor students is readily apparent.

Several study-habits questionnaires have been published during the past twenty years which have been based upon analyses of the responses of good and poor students, but none thus far have shown any appreciable correlation with grades in school.

In 1933, Wrenn (*17*) published one of the first study-habits inventories. His final selection of statements was based upon an item analysis of the responses to a check list of study habits made by high and low scholarship groups matched for such important variables as intelligence and major field of study. In spite of the empirical basis for Wrenn's *Study-Habits Inventory*, subsequent validity studies by Reeder (*12*) and Gordon (*5*) indicate that only a slight relationship exists between scores on the inventory and scholastic success. A later item analysis of the *Study-Habits Inventory* by Wrenn and Humber (*18*), using the same methods as

Wrenn, prompted a revision of the original inventory, the validity of which has yet to be convincingly demonstrated.

A self-rating scale consisting of fifty-six statements was assembled by Locke (*8*) and administered to eight groups of college students with only fair success. Correlations between scores on Locke's *Student Skills Inventory* and one-semester grades ranged from −.07 to .39 with a median value of .28, only slightly higher than the correlations reported for Wrenn's inventory. Similar low but statistically significant relationships between scores on inventories of study habits and measures of scholastic success have been reported by Brooks and Heston (*1*), Schlesser and Young (*13*), and Michael and Reeder (*10*). Even less promising have been the studies by Eurich (*4*), Brown (*2*), and Schultz, et al (*11*, *14*).

For the most part, these investigations have aimed at uncovering the mechanics and skills of studying which might differentiate the good from the poor student. In general, these efforts have been unrewarding.

On the other hand, some of these studies have suggested that the degree of steady, highly motivated effort put forth by the student and his attitudes toward school work, rather than the purely mechanical procedures of studying, might be of considerable importance. In a three-year clinical study of girls at Sarah Lawrence College, Tiebout (*16*) concluded that the presence of a 'lazy student syndrome' was characteristic of students whose scholastic records were poorer than aptitude test scores would predict. This consisted mainly of four personality characteristics: (1) a need to rely upon strong and immediate motivations to start studying, (2) a tendency to have interests of a transitory nature, (3) a tendency to be governed by strong hedonistic principles, and (4) a deep-seated problem in learning. Other significant characteristics of the poor student as noted by Tiebout were a superficial and haphazardly disorganized quality pervading written work, a tendency to gloss over failures, to rationalize poor achievement, to procrastinate and yet show continual optimism about changing for the better.

Other, less systematic, investigations by Symonds (*15*) and Mathews and Toepfer (*9*) likewise suggest that the difference between good and poor students of comparable intelligence is mainly one of attitude, set, and motivation, rather than of professed study habits.

The present investigation was undertaken in an effort to con-

struct and validate a self-rating questionnaire that would measure a student's attitude and motivation toward studying as well as his study habits *per se*. From group discussions with college freshmen, existing inventories on study habits, studies using observational and interview techniques to differentiate good and poor students, and reports on related experiments in the field of learning, two hundred and thirty-four statements were compiled. These statements were separated into two groups, one consisting of 'study-mechanics' items, the other of 'study-attitudes' items. This classification was based upon the authors' judgment as to whether an item elicited mainly degree of adherence to the mechanics and conditions of studying, or whether it was chiefly concerned with attitudes toward studying and motivation to do well in academic work.

Ambiguous statements were reworded or eliminated. The eighty-eight 'study-attitudes' and one-hundred 'study-mechanics' items thus obtained were assembled randomly in questionnaire form. Following each item a five-point scale was provided for the student to indicate whether he rarely, sometimes, frequently, generally, or almost always followed the procedure in question. The terms marking the intervals of the five-point scale were defined on a percentage basis to provide the subject with a definite standard for making judgments.

The preliminary questionnaire with accompanying IBM answer sheet was individually administered to one hundred and seventeen second-semester freshmen at The University of Texas in the Spring of 1951. All the subjects were carefully selected from either the dean's list of honor students or from the names of students on scholastic probation, representing good and poor students, respectively. To increase the likelihood of obtaining true responses, the purpose of the questionnaire was disguised by telling each student he had been selected at random from the freshman class to participate anonymously in an investigation of sex differences in study habits. In addition to standard instructions for filling out the questionnaire, each student was asked to circle the number on the answer sheet which corresponded to an item that he found difficult to answer. Any concern expressed by the student regarding the meaning of any word or phrase was recorded for future reference. In this way, information was obtained which later proved of value in refining the questionnaire.

Twenty-two of the twenty-three low-scholarship freshmen were then paired individually with twenty-two of the ninety-four high-scholarship freshmen. The members of each pair were matched as closely as possible on the following seven variables: sex; marital status; length of time in college; total score on the *American Council on Education Psychological Examination*, 1941 edition (ACE); date of birth; number of semester-hours of credit carried; and type of residence. Of the forty-four students, twelve were women and thirty-two were men.

Each item on every questionnaire was scored by assigning numerical values ranging from 1 to 5 to each of the five possible choices, a value of 1 being given to 'rarely', 2 to 'sometimes', and so on. Response-distributions for the high- and low-scholarship groups were compared for each item, using Fisher's t test to determine the significance of the difference between each pair of correlated means. Four of the one hundred and eighty-eight items differentiated the high and low groups beyond the .01 level of significance; nine proved significant at the .02 level; and thirteen were significant at the .05 level. Of special interest is the fact that of sixty items significant beyond the .20 level, forty-two were from the eighty-eight 'study-attitudes' items while only eighteen were from the one hundred 'study-mechanics' items.

This exploratory study suggested strongly that a self-rating questionnaire heavily loaded with statements referring to study-attitudes would be superior to the usual study-habits inventory for predicting the level of scholastic success in college.

Since it was desirable to reduce the average testing time from thirty-five to twenty minutes, the questionnaire was reduced in length to one hundred and two items. The rejection of items was based in part upon the exploratory item analysis, in part upon a tabulation of the number of times each item was marked as difficult to answer, and in part upon a subjective belief that some items contributed little to the questionnaire's purpose. In addition to eliminating eighty-six items, many of the retained items were reworded and the sequence of the items was revised.

This 102-item questionnaire was administered in May, 1951, to two hundred and eighty-five men and two hundred and eighty-five women who were first-semester freshmen at San Antonio College, a municipal junior college; Trinity University, a church-related (Presbyterian) college; and The University of Texas. This was done

at regularly scheduled meetings of freshman English classes in groups of twenty to thirty-five subjects each. All students in beginning English courses at San Antonio College and Trinity University and a random sample of similar classes at The University of Texas were tested to insure a representative sample of first-semester freshmen. Only unmarried students less than twenty-four years of age who were in their first semester of college work were included in the study.

The letter grades earned and semester hours of credit taken by each student during the Spring semester of 1951 were used as a basis for selecting good and poor students. Grade-point averages were computed for each individual by assigning numerical values of 4, 3, 2, 1, and 0 to grades of A, B, C, D, and F, respectively; multiplying each value by its corresponding number of credit-hours; and obtaining the weighted average for all courses. Six distributions were compiled, one for men and one for women within each of the three colleges. The top twenty-seven per cent of each distribution constituted the high-scholarship group and the bottom twenty-seven per cent the low-scholarship group.

A two-by-five contingency table was constructed for each item separately for men and women to determine how well the item discriminated between the good and the poor students. For the men, forty-nine items yielded chi squares significant beyond the .05 level; for the women, twenty items proved significant at the .05 level. Because of this sex difference, separate scoring keys were constructed for men and women.

For the men, two keys were constructed, Form M_1 consisting of forty-two items and Form M_2 containing twenty-nine items. Five of the forty-nine significant items had been eliminated from further consideration because they proved too confusing to eight or more students.[1] The other two were rejected because they exhibited serious inconsistencies of pattern when the responses of the two criterion-groups were compared. The 29-item key for men (Form M_2) included only those significant items for which the response-patterns of the good and poor groups were skewed in different directions; i.e., one group toward the 'almost always' and the other

[1] Students were encouraged to mark unclear statements while completing the inventory. Analysis of these data revealed that a small number of items were checked by eight or more students as ambiguous, the remaining items apparently being clear to everyone.

TABLE I.—CORRELATION BETWEEN INVENTORY SCORES AND ONE-SEMESTER GRADES FOR COLLEGE FRESHMEN, MAY, 1951, ADMINISTRATION

College	Men		Women	
	N	r	N	r
University of Texas	138	.46	96	.42
San Antonio College	93	.56	60	.47
Trinity University	54	.54	53	.54
Total	285	.50	209	.46

toward the 'rarely' end of the scale. This minimized the likelihood of chance factors operating in the selection of items for inclusion in the second key. Only one 18-item key (Form F) was constructed for women. Two of the twenty significant items had been eliminated from further consideration in their present form because they contained words found to be incomprehensible to eight or more of the subjects.

As a tentative check on the validity of the 102-item questionnaire, correlation coefficients were computed between grade-point averages and scores on both M_1 and M_2 or on F, for all men and women separately in each college. The correlation between the two keys, M_1 and M_2, proved to be .98. Since they both yielded identical coefficients (.50) when correlated with criterion scores, only the results for M_2, the shorter key, are presented in Table I, together with the results for F, the women's key.

The consistently satisfactory correlations from one college to the next for both men and women—none is below .42—indicate a provisional validity sufficiently high to warrant additional research concerned with its cross-validation on new samples of college freshmen. Such further research was deemed necessary for another reason, too. The above students were tested in May, near the close of their first semester at college. This late in the semester a student is usually aware of how well he is doing in his courses, and this might very well influence his responses to the questionnaire. Evidence bearing upon this question is provided by Gordon (*5*). When twenty-seven student nurses were tested upon entering college and then retested one month later, the correlation between scores on Wrenn's *Study-Habits Inventory* and course grades rose from .26 to .58.

TABLE II.—CORRELATION BETWEEN INVENTORY SCORES AND ONE-SEMESTER GRADES FOR ENTERING COLLEGE FRESHMEN AT THE UNIVERSITY OF TEXAS, SEPTEMBER, 1951, ADMINISTRATION

	N	r
Men	219	.50
Women	176	.52

In September, 1951, the 102-item questionnaire was cross-validated on a fresh sample of two hundred and nineteen men and one hundred and seventy-six women who were entering freshmen at The University of Texas. At the end of the Fall semester, grade-point averages were obtained for every student and correlated with scores on the questionnaire. As indicated in Table II, the results of the cross-validation were highly satisfactory, correlations of .50 and .52 being obtained for the men and women, respectively.

To determine the extent to which performance on this inventory of study habits and attitudes reflects intellectual factors as measured by standard scholastic aptitude tests, scores on the ACE and the *Coöperative Inter-American Tests of Reading*, Advanced Level, Form AE, (CIA) were obtained for most of the students tested in September. The intercorrelations of scores on the inventory of study habits and attitudes, the ACE, the CIA, and one-semester grades are presented in Table III.

Correlations between the study-attitudes inventory and the ACE were .21 and .30, while those between the inventory and the CIA were only slightly higher. Clearly, performance on the inventory of study habits and attitudes is largely unrelated to the usual measures of scholastic aptitude. Consequently, it can be expected to make a unique and important contribution to the prediction of college grades.

TABLE III.—INTERCORRELATIONS OF INVENTORY SCORES, THE ACE, THE CIA, AND ONE-SEMESTER GRADES FOR 144 MEN AND 176 WOMEN

Test	Men			Women		
	ACE	CIA	Grades	ACE	CIA	Grades
Study inventory	.30	.39	.59	.21	.43	.52
ACE		.75	.57		.83	.63
CIA			.58			.64

To determine how much better one-semester grades could be predicted by using a combination of the ACE and the inventory rather than either alone, multiple correlation coefficients were computed among the three variables. The obtained correlations were .720 for men and .744 for women, indicating considerable improvement in the prediction of grades. In view of the probable unreliability of a criterion based upon grades for only one semester, these results indicate that the inventory is a highly promising instrument to aid in understanding students with academic difficulties and to provide a basis for counseling.

A final revision of the questionnaire was made to eliminate items serving no useful purpose and to revise the wording of several items which proved confusing to some freshmen. Thirty-four items were discarded outright and seven new items were added, resulting in a 75-item questionnaire hereafter referred to as the *Survey of Study Habits and Attitudes*.[2] None of the items which had proven to be significant discriminators in the previous research were altered in any way. Subsequent to the research herein reported, extensive normative, validity, and reliability data have been obtained for over three thousand college students throughout the country to whom the *Survey of Study Habits and Attitudes* was administered in 1952 and 1953. Additional item analyses were made resulting in a 36-item key for men and 29-item key for women. Scoring has been simplified and special counseling keys have been devised to identify those statements which represent practices or faults that may be contributing to the student's difficulties. The details of this later research are being reported elsewhere (*6*).

SUMMARY AND CONCLUSIONS

Although a large number of how-to-study manuals and a few study-habits inventories have been published, none thus far have shown any appreciable relationship to subsequent academic performance. The research herein reported was designed to develop a self-rating questionnaire that would measure a student's study habits and attitudes of importance in scholastic success. Analysis of the results obtained for a 188-item preliminary questionnaire

[2] Test booklets, answer sheets, scoring keys, and manual for the Brown-Holtzman *Survey of Study Habits and Attitudes* may be obtained directly from the publisher, The Psychological Corporation, 522 Fifth Avenue, New York, New York.

administered to high- and low-scholarship groups, matched on relevant variables, revealed that an inventory heavily loaded with statements referring to attitudes and motivation would be superior to the usual study-habits inventory.

A revised questionnaire was administered to two hundred and eighty-five men and two hundred and nine women who were first-semester freshmen in three separate colleges. Using one-semester grades as a criterion, separate scoring keys were developed for men and women. The questionnaire was cross-validated on a fresh sample of two hundred and nineteen men and one hundred and seventy-six women, yielding highly satisfactory results, correlations of .50 and .52 with grades at the end of the semester. A final revision of the questionnaire, referred to as the *Survey of Study Habits and Attitudes*, has since been administered to several thousand students with equally satisfactory results and is now available for general use.

From these studies the following conclusions can be made:

1) Attitudes toward studying can be measured by objective procedures and play a substantial rôle in subsequent academic achievement.

2) Performance on the *Survey of Study Habits and Attitudes* is only slightly related to scholastic aptitude as measured by the ACE *Psychological Examination* or similar tests.

3) The unique predictive validity of the *Survey of Study Habits and Attitudes* is important evidence of its relevance for counseling purposes, diagnostic testing, investigations of the education process, and as a teaching aid in remedial or how-to-study classes.

REFERENCES

1) F. D. Brooks and J. C. Heston. "The validity of items in a study habits inventory," *Journal of Educational Psychology*, 36: 257–270, 1945.

2) C. W. Brown. "The study habits of failing and successful students in the first two years of college," *Journal of Experimental Education*, 9: 205–208, 1941.

3) N. B. Cuff. "Study habits in grades four to twelve," *Journal of Educational Psychology*, 28: 295–301, 1937.

4) A. C. Eurich. "An analysis of self-ratings on studiousness traits," *Journal of Applied Psychology*, 14: 577–591, 1930.

5) H. P. Gordon. "Study habit inventory scores and scholarship," *Journal of Applied Psychology*, 25: 101–107, 1941.

6) W. H. Holtzman, W. F. Brown and W. G. Farquhar. "The Survey of

Study Habits and Attitudes: A new instrument for the prediction of scholastic success," *Educational and Psychological Measurement*, 14: 726–732, 1954.

7) S. R. Laycock and D. H. Russell. "An analysis of thirty-eight how-to-study manuals," *School Review*, 49: 370–379, 1941.

8) N. M. Locke. "The student skills inventory: a study habits test," *Journal of Applied Psychology*, 24: 493–504, 1940.

9) C. O. Mathews and Nora Toepfer. "Comparison of principles and practices of study," *School Review*, 44: 184–192, 1936.

10) W. B. Michael and D. E. Reeder. "The development and validation of a preliminary form of a study-habits inventory," *Educational and Psychological Measurement*, 12: 236–247, 1952.

11) R. C. Myers and D. G. Schultz. "Predicting academic achievement with a new attitude-interest questionnaire—I," *Educational and Psychological Measurement*, 10: 654–663, 1950.

12) C. W. Reeder. "Study habits," *School and Society*, 42: 413–415, 1935.

13) G. M. Schlesser and C. W. Young. "Study and work habits," *School Review*, 53: 85–89, 1945.

14) D. G. Schultz and B. F. Green, Jr. "Predicting academic achievement with a new attitude-interest questionnaire—II," *Educational and Psychological Measurement*, 13: 54–64, 1953.

15) P. M. Symonds. "Methods of investigation of study habits," *School and Society*, 26: 145–152, 1926.

16) H. M. Tiebout. "The misnamed lazy student," *Educational Record*, 24: 113–129, 1943.

17) C. G. Wrenn and R. B. McKeown. *Manual of Directions for Study-Habits Inventory*. Stanford: Stanford University Press, 1933.

18) C. G. Wrenn and W. J. Humber. "Study habits associated with high and low scholarship," *Journal of Educational Psychology*, 32: 611–616, 1941.

ORGANISMIC GROWTH: SEXUAL MATURITY AND PROGRESS IN READING

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According to the organismic concept, all features of the changing structures and functions of the organism are intertwined in some kind of systematic relatedness. It is claimed, for example, that progress in reading is related to various features of the 'total growth process'. Specifically, it has been suggested that the growth of certain primary sex characteristics is related to progress in reading.

Olson and Robinson have both commented on the possibility of a relationship between sexual maturing and achievement in reading. Olson (*3*, p. 236) observed that boys who are retarded in reading may also be retarded in sexual growth, specifically in the descent of the testes. Robinson (*4*, p. 150) tends to agree with this possibility. Later, Olson (*3*, p. 133–34) expressed the opinion that there is a relationship between achievement in reading and the age of the onset of the spurt in the growth of the testes. At the same time he indicated an interest in further research to determine more precisely the degree and the nature of the relationship.

Stolz and Stolz (*6*, p. 323) failed to find a coincidental relationship between the timing of the onset of accelerated growth of the testes and of height. However, they did observe that for each of sixty-one boys, the spurt in growth of the former occurred prior to the puberal growth spurt of the latter. (Note: The age of the onset of the spurt in the growth of the testes will henceforth be designated as T_1.) The discrepancy between the two ages varied between .75 and 1.25 years for almost eighty per cent of the subjects. There might, therefore, be a sequential rather than a coincidental relationship between these two ages; the correlation of .857 reported by Stolz and Stolz indicates a "strong tendency for these growth phenomena to occur in sequential order" (*6*, p. 344).

Since T_1 was not found to be coincident with a growth spurt in a major physical dimension such as height, we would probably not expect to find it coincident with changes in a functional measure such as reading competence. There remains, however, the possi-

bility of a sequential relationship of the type suggested by Stolz and Stolz.

The specific questions studied for this report are:

1) Is there a marked change in the direction of the reading curve at T_1?

2) Or is there a sequential patterning of the changes in these two phenomena?

READING CURVES OF INDIVIDUAL BOYS

In some longitudinal studies various measurements have been obtained at specified chronological ages. Thus, physical measurements and certain psychological data, such as intelligence scores, may have been gathered within a narrow interval of time centering on each anniversary of the birth date. However, for various reasons, it has often been impossible to give achievement tests at specified ages; such tests are more likely to be administered to all subjects on the same day, so that the results have reference to different chronological ages. Under these circumstances certain adjustments in the data are necessary in order to render them more suitable for group analysis. The nature of one of these modifications (*5*) will be illustrated by means of the data for three boys in the California Adolescent Study.

Chronological ages, reading ages, increments, and increments per year for these boys are shown in Table 1. Their reading ages (RA) are graphed in Figure 1(A). The chronological age at the end of the interval (*6*, p. 340) that included T_1 has been indicated by the vertical arrow. Three different relationships are apparent. In one case the largest annual increase in reading age occurred before T_1,

TABLE 1.—READING AGES AND ANNUAL RATIO OF INCREMENTS FOR THREE BOYS IN THE CALIFORNIA ADOLESCENT STUDY

Case	T_1	First Test		Second Test		Third Test		Fourth Test		Increments in RA			Annual Rate of Increment in RA		
		CA_1	RA_1	CA_2	RA_2	CA_3	RA_3	CA_4	RA_4	$RA_2 - RA_1$	$RA_3 - RA_2$	$RA_4 - RA_3$	$\frac{RA_2 - RA_1}{CA_2 - CA_1}$	$\frac{RA_3 - RA_2}{CA_3 - CA_2}$	$\frac{RA_4 - RA_3}{CA_4 - CA_3}$
A	145	133	150	144	159	157	170	168	182	9	11	12	10	10	13
B	157	139	153	150	175	162	179	174	192	22	4	13	24	4	13
C	156	143	135	155	137	167	155	179	168	9	18	13	2	18	13

in another after T_1. In the third subject, there were no marked differences among the annual increments.

Certain types of comparisons between these graphs are difficult because the T_1's occurred at widely varying CA's. It was decided to plot the data with a different unit on the horizontal axis, one which would make visual comparisons and statistical analyses more feasible. The new unit refers to the difference between T_1 and the CA's at which the achievement tests were administered. The units were computed from the formula

$$d_i = CA_i - T_1 .$$

(Note: i may be 1, 2, 3, or 4, since the reading tests were administered at four different ages.)

CA_i refers to the chronological age at which the i-th reading test had been administered. Thus, if the first test (i = 1) had been given when a boy was 145 months old, and if T_1 was 140 months, then d_1 in this instance at the time of this testing was 145 − 140 = 5 months. The new units (d) for the three boys whose reading curves are shown in Figure 1(A) are in the d_i column of Table 2; these

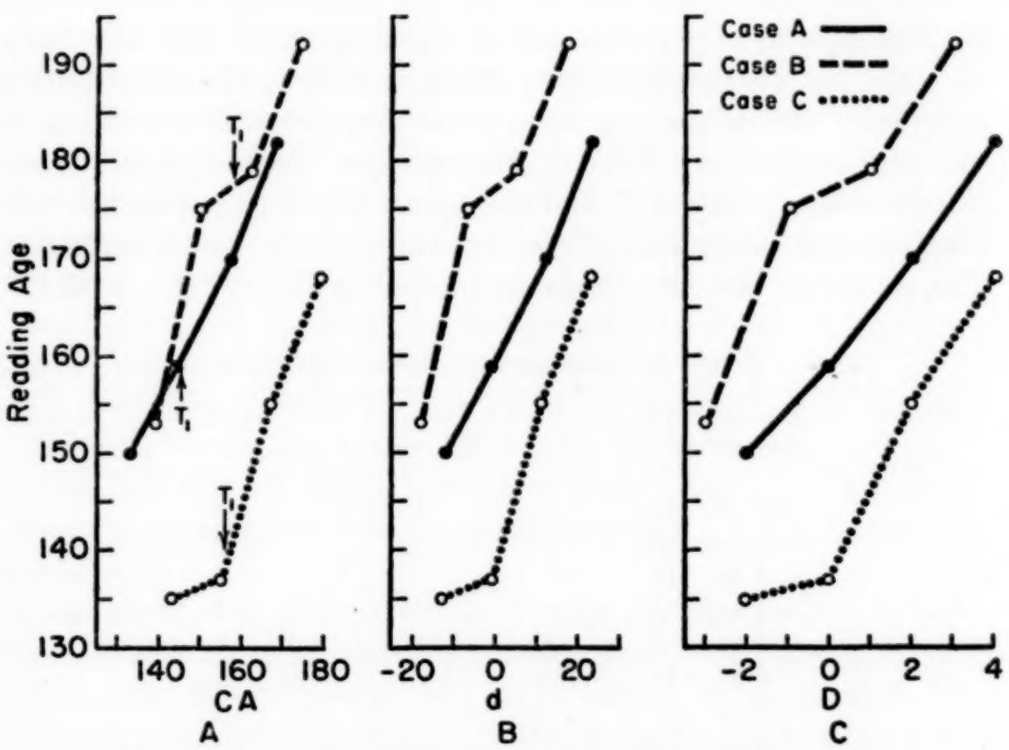

FIG. 1. Reading profiles of three boys, Cases A, B, and C

TABLE 2.—COMPUTATION OF VARIOUS TYPES OF UNITS

Case	T_1	CA_i*				d_i**				D_i†				D_i‡			
		CA_1	CA_2	CA_3	CA_4	d_1	d_2	d_3	d_4	D_1	D_2	D_3	D_4	D_1	D_2	D_3	D_4
A	145	133	144	157	168	−12	−1	12	23	−2	0	2	4	−2	0	2	4
B	157	139	150	162	174	−18	−7	5	17	−3	−1	1	3	−3	−1	1	3
C	156	143	155	167	179	−13	−1	11	23	−2	0	2	4	−2	0	2	4

* CA at each of the four administrations of the reading tests.

** $d_i = CA_i - T_1$.

† $D_i = CA_i - T_1$, with the deviation classified according to Table 3.

‡ $D_i = CA_i - T_1$, with the deviation classified according to Table 4.

units were replotted against RA in Figure 1(B). A comparison of these two figures reveals that this type of presentation makes it easier to generalize the changes in reading ages as a boy passes through T_1 as the point of reference. Two other methods of handling the data will next be illustrated in connection with the statistical analysis of the group data.

STATISTICAL ANALYSIS

The problems of analysis are still not completely resolved since reading ages were not obtained at equal deviations of time from T_1. The d's were consequently changed to D's. The procedure is essentially that of putting the d's into step-intervals according to the scheme shown in Table 3. For example, the D unit is 4 when the difference between T_1 and the age at which a reading test was administered varies from nineteen to twenty-four months inclusive. The curves for the three boys are plotted in Figure 1(C), with the

TABLE 3.—DEFINITION OF THE D UNITS

$d_i = CA_i - T_1$ (months)	D
19 to 24	4
13 to 18	3
7 to 12	2
1 to 6	1
0 to −5	0
−6 to −11	−1
−12 to −17	−2
−18 to −23	−3

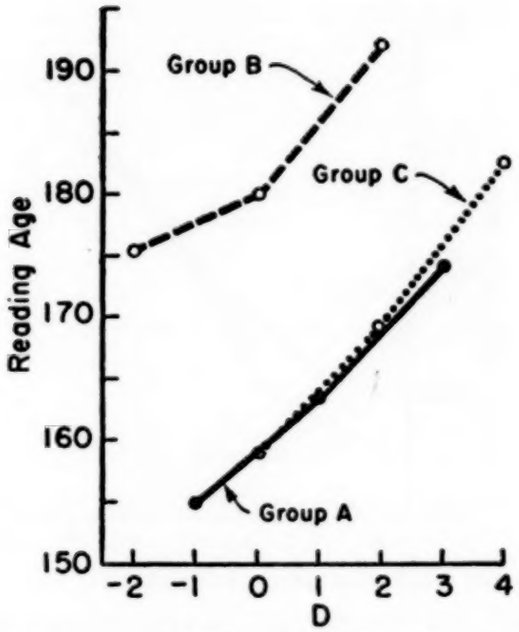

FIG. 2. Mean reading ages of three groups of boys, chronological ages expressed in D units.

D units on the horizontal axis. (The determination of the D units for the three cases discussed above is illustrated in column D of Table 2.)

The values of the means and sigmas of the reading ages of the boys at various D's were then computed. Reading ages were available for ten subjects whose D units were -1, 1, and 3, (Group A), for seven with units of -2, 0, and 2, (Group B), and for twenty with units of 0, 2, and 4 (Group C). (There was no overlap in membership of the three groups.) The means for each group are shown in Figure 2.

There is a slight tendency for the annual increments in reading age to be greater during those intervals that are later in time than during those periods near T_1. For six of the ten subjects in Group A (Figure 2) increments in test scores were larger between $+3$ and $+1$ than between -1 and $+1$. For five of the seven boys in group B, larger increments were found between 0 and $+2$ than between $+2$ and $+4$.

It was decided to choose a second range for the deviations between CA_i and T_1 in the hope of obtaining somewhat larger groups. Consequently, the following units for D, having the merit that T_1 is probably more accurately defined as the middle than as the end of an interval, were adopted.

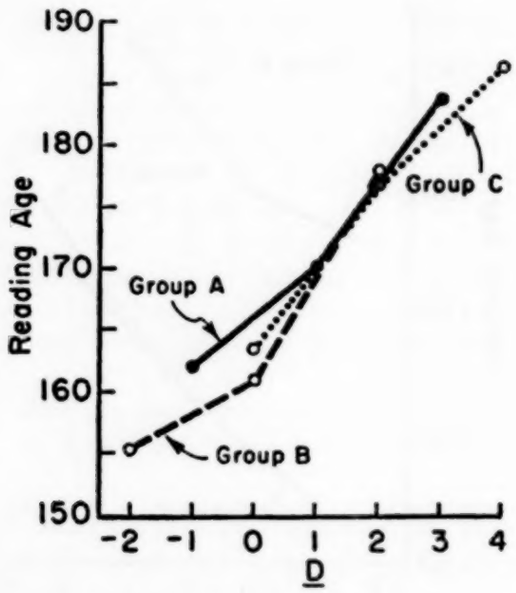

FIG. 3. Mean reading ages of three groups of boys, chronological ages expressed in *D* units.

Again three groups were located: twenty-three in Group A (*D*'s of −1, 1, and 3), five in Group B (*D*'s of −2, 0, and 2), and fourteen in Group C (*D*'s of 0, 2, and 4). (As in the previous analysis, a boy appears in only one of the three groups.)

The mean RA's at each of the indicated D's are illustrated graphically in Figure 3. For the subjects of groups A and B, the mean annual increment in RA was greater in the period following than during the interval including T_1. In Group C the annual increment in RA was larger in the period immediately following T_1 than in the subsequent period. There does not appear to be any discernible coincidental relationship between differential increase in reading age and T_1. The trend seems to be for T_1 to precede the interval that includes the largest increment in RA.

The reading quotients (RQ) were also obtained and averaged as already described for reading ages. The means are tabulated below:

	N = 23			N = 14			N = 5		
D	−1	1	3	0	2	4	−2	0	2
RQ (Mean)	114	111	112	116	116	113	112	108	108

Clearly the rate of change in reading performance, as measured by the reading quotient, has no organismic relationship to T_1. The

TABLE 4.—DEFINITION OF THE *D* UNITS

$d_i = CA_i - T_1$ (months)	*D*
21 to 26	4
15 to 20	3
9 to 14	2
3 to 8	1
−3 to 2	0
−4 to −9	−1
−10 to −15	−2
−16 to −21	−3

difference between the mean RQ's at *D*'s (−1) and (1) was not significant at the .01 level of confidence. For twenty-eight boys, the largest increases in RA were associated with smaller RQ's than they had earned at some earlier age. For twenty-seven cases, the maximum increase in RA was associated with the largest reported RQ.[1]

CORRELATIONAL ANALYSIS

Stolz and Stolz (*6*, p. 344) reported a correlation of .857 between T_1 and the age of onset of the spurt in growth in height. They also found that in every case T_1 preceded the age at which the spurt in height occurred. A similar type of analysis of the relationship between T_1 and a spurt in reading during adolescence is difficult to duplicate since reading tests were given on only four occasions. However, the increments in reading age were computed and adjusted to indicate the annual rate of increase (as in Table 1). The chronological age at the end of the interval that showed the largest estimated annual change was taken as the age of maximum growth in reading (designated as MGA_R). This procedure is consistent with the method used for determining T_1 (*6*, p. 340). The Pearsonian correlation between MGA_R and T_1 was found to be .267, which is significant at about the .05 level ($N = 57$).

MGA_R was also computed by defining it as the age at the end of the first interval that showed an annual rate of increase of at least six months of reading age. Actually this procedure changed MGA_R for only four cases. For these data, the correlation between

[1] The reading ages were accepted at face value; that is, no account was taken of the fact that small differences might not be reliable.

MGA_R and T_1 was found to be .324, which is significant at the .02 level.

The coefficients reported are consistent with results from other studies of the relationship between physiological changes and behavior (*1*, p. 600). They are not, however, large enough to warrant the conclusion that there is a high degree of relatedness between sexual maturity and such a behavioral characteristic as reading.

SUMMARY AND CONCLUSIONS

Reading ages and quotients and the age of the onset of the spurt of growth in the testes (T_1) were available for fifty-seven boys in the California Adolescent Study. The data were analyzed to provide answers to two questions.

1) Do the curves for reading age and reading quotient improve markedly at T_1, the time of the spurt in growth of the testes?

2) Is there a significant correlation between T_1 and the age of the maximum annual increment in reading age?

On the basis of the data presented, the answer to each question is negative, although it is true that the largest increase in reading ages in the years studied occurred after T_1. There is little reason for believing that there are cyclical changes in reading performance during adolescence. Variations in annual increments were found, but these were in general rather minor and quite irregular. Regarding the second question, neither the theoretical implications nor the practical values of a coefficient of correlation of the order here reported would be of much importance.

No doubt there are important relationships among T_1 and certain other aspects of growth or development or learning. These related characteristics are more likely to be in the realm of physical growth, and possibly in social and emotional learning, rather than in academic learning (except insofar as progress in the latter is related to social and emotional factors). Status respecting testicular growth in adolescent boys seems to be at most only remotely related to progress in reading. The surest guarantee of progress in reading probably lies in the quality of instruction; reading, both developmental and remedial, is dependent upon other characteristics than progress toward sexual maturity.

REFERENCES

1) L. Carmichael (Ed.). *Manual of Child Psychology*. New York: Wiley, 1946.

2) W. S. Gray (Ed.). *Reading and Pupil Development.* Supplementary Educational Monographs. Chicago: University of Chicago Press, 1940.

3) W. C. Olson. *Child Development.* Boston: Heath, 1949.

4) N. M. Robinson. *Why Pupils Fail in Reading.* Chicago: University of Chicago Press, 1946.

5) F. K. Shuttleworth. "The physical and mental growth of girls and boys age six to nineteen in relation to age at maximum growth." *Monogr. Soc. Res. Child Developm.*, 1939, 4, No. 3.

6) H. R. Stolz and L. M. Stolz. *Somatic Development in Adolescent Boys.* New York: Macmillan, 1951.

SELF-APPRAISAL IN TEACHER PERSONALITY

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Experiments in the study of personality have increased rapidly in the past decade both in kind and in scope. Yet, every careful investigator knows that while considerable progress has been achieved the goal remains far ahead.

Various measuring instruments have been devised for the purpose of studying personality. These may be grouped broadly in three principal categories; namely, objective tests, biographical and life-record data, and the so-called self-rating scales and inventories.

Cattell (*9*, *10*) maintains that any sufficiently broad and important personality trait will show itself almost equally well in any of these three media. He contends that an identifiable factor found in one medium may not be strictly the same factor, yet the high correlations will indicate the functioning of the same basic trait.

Nevertheless, self-rating as well as rating by others has certain limitations. In order to do an adequate job of rating, one must achieve a proper perspective. A good judge of personality must be capable of detachment from his social milieu and at the same time be able to view the subject of his rating relative to current social environment. Self-judgment demands a similar self-detachment.

For all practical purposes, however, a frame of reference or viewpoint, consequent upon one's experiences will be present. An individual's evaluation of the self or others is to some extent dependent upon the group with which he makes the comparisons, be it done consciously or unconsciously.

In order to circumvent this limitation Wolff (*23*) developed a technique which he called 'unconscious self-judgments'. His study showed that the individual rarely judges himself to be average. Huntley (*14*), who duplicated Wolff's experiment, found similar results. The unconscious self-ratings yielded extreme judgments.

Another study of self-opinions, that of Sears (*20*), compared self-ratings with the judgments of several intimate friends. He found defense reactions preventing accurate judgments of others in those who were low in self-insight.

Studies on levels of aspiration by Gruen (*13*) report self-ratings to be related to emotional maladjustment. Those among his subjects who were emotionally unstable tended to give either very high estimates or judgments well below actual performance, whereas the well-adjusted were consistent in judging slightly above actual performance.

Maslow (*16*) shows interrelations between security and self-esteem. His studies indicate a general tendency for persons who feel insecure to evaluate themselves poorly. Yet there is no close correlation between security and self-esteem. Stagner (*22*), from a study of five hundred twenty-four college men, concludes that it is normal to have a moderate tendency to over-rate oneself on rating scales and questionnaires.

In general it seems that inadequately integrated individuals are likely to rate themselves either very high or very low, while, on the other hand, moderate self-esteem tends to be correlated with better adjustment.

At best, self-rating is an introspection and as such is subject to the limitations of introspective psychology. It also suffers from the disadvantage of a certain amount of unreliability, which can never be reduced by increasing the number of observers. There is just one 'self'.

Withal, however, Burt (*8*) considers self-rating as second only to life-record methods for accuracy in personality measurement. He further maintains that when used with coöperative groups, self-rating ties for first place in accuracy. With dishonest and ignorant subjects it falls below every other method.

PROCEDURE

The present investigation seeks to ascertain the relationships between the self-ratings and ratings by peers for a group of teachers on a number of personality variables. A modified form of the Kelly (*15*) scale, prepared by the writer for another study (*3*), was used. This consists of thirty-six characteristics or traits related to personality, each of which is rated on a separate scale in

values of from one to ten. The ends of the continuum for the separate scales were staggered so as to lessen any possible halo effect.

The population sampled in the study consisted of teachers of grades four through eight in both rural and city schools, in public and private schools.

Self-ratings and ratings by four fellow teachers were secured for each of one hundred teachers. Ratings by colleagues were averaged for each teacher on each scale. These were then compared with the self-ratings of each teacher on each of the thirty-six scales. In order to facilitate interpretation, all inverted ends of the scales were reversed so that for purposes of comparison the desirable ends of the continuum would be at the upper ends of the scales and the less desirable qualities at the lower ends of the scales.

DEGREE OF RELATIONSHIP

Pearsonian *r*'s were computed for each of the personality variables. As will be noted in Table 1, these range from $54 \pm .07$ to $.13 \pm .10$ with a median r of $.34 \pm .09$. It will be observed first that all correlations are positive showing that the ratings by self and others are in the same direction. It is further observed that twenty-eight of the thirty-six r's are statistically significant at the one per cent level of confidence and that three more are significant at the five per cent level.

The individual personality traits showing the higher degree of relationships and those exhibiting less agreement are worthy of consideration. Lowest agreement is present on such components of personality as physical attractiveness, degree of tolerance, amount of energy and pep displayed, absence of egotism and self-centeredness, and estimates of intelligence. Means on these five scales, though not statistically significant in their differences favored the 'self' in the tolerance, pep, and absence of egotism. On physical attractiveness and intelligence the mean ratings of colleagues exceeded slightly the mean self-ratings. Self-estimates were the more conservative on these two traits.

Glancing at the personality elements showing highest agreement between self-rating and ratings by others, one observes such traits as persistence in sticking to a task, thoughtfulness of others, common sense, a sense of humor, dependability, punctuality, and

TABLE 1.—AGREEMENT BETWEEN SELF-ESTIMATES AND OPINIONS OF COLLEAGUES

Personality Variable	$r \pm SE$		t values		Personality Variable	$r \pm SE$		t values	
Persistence	.54	.07	1.00	S*	New social situations	.34	.09	2.19	S
Boring-entertaining	.48	.08	0.35	P†	Courtesy	.32	.09	1.25	P
Thoughtfulness of others	.47	.08	1.27	P	Selfishness	.32	.09	0.87	S
Boisterous-quietness	.45	.08	0.14	S	Neatness	.31	.09	0.47	P
Common sense	.45	.08	0.06	P	Religiousness	.30	.09	0.36	P
Nervous-calmness	.44	.08	0.06	S	Jealousy	.30	.09	2.07	S
Sense of humor	.43	.09	2.20	S	Graceful-awkwardness	.30	.09	1.46	P
Dependability	.43	.09	1.56	S	Good-sportsmanship	.28	.09	0.06	S
Punctuality	.42	.08	2.18	S	Voice	.28	.09	0.36	P
Sociability	.39	.09	0.06	P	Coöperation	.25	.10	2.13	S
Temper	.39	.09	0.36	S	Conventionality	.23	.10	1.00	P
Generosity	.37	.09	0.00	—	Sincerity	.21	.10	0.59	S
Disposition	.37	.09	1.13	S	Popularity	.19	.10	0.00	—
Initiative	.37	.09	0.71	S	Physical attractiveness	.18	.10	0.08	P
Culture	.37	.09	0.38	P	Tolerance	.18	.10	1.14	S
Patience	.35	.09	0.06	P	Energy and pep	.17	.10	0.94	S
Interests	.35	.09	‡4.00	S	Egotism	.16	.10	0.47	S
Honesty	.34	.09	2.00	S	Intelligence	.13	.10	1.86	P

All r's at or above .196 are statistically significant at the 5% level.
All r's at or above .255 are statistically significant at the 1% level.
* Signifies favor self.
† Signifies favor peers.
‡ Statistical significance at 1% level.

others. Whether the higher degree of agreement between self-rating and peer-rating on these traits be due to a greater facility in observation or to some other cause is a moot question.

COMPARISON OF MEANS

A comparison of means for these traits was made by the t technique. The second and fourth columns of Table 1 reveal those for self-ratings to exceed those for peer-rating on such qualities of personality as sense of humor, persistence, dependability, punctuality, calm and self-controlled, optimistic disposition, not easily

angered, resourceful and having much initiative, generally quiet rather than boisterous, wide range of interests, honest and just, unselfishness, jealousy, good-sportsmanship, coöperation with others, and sincerity.

Though differences in means for these are not great they do corroborate the studies mentioned earlier and also that of Robertson (*19*) in that self-estimates usually exceed slightly the ratings by others. This does not necessarily mean that the individuals are rating themselves too highly. The same psychological factors that tend to lead one to rate oneself slightly higher than one's peers could lead one to rate oneself peers slightly lower than oneself. Similarly would the same factors cause others to rate one slightly lower than one rates oneself. Which is the better criterion is a question to which no adequate answer is available at present.

The remaining traits showed either no difference or a slight difference in favor of the ratings by others.

RELIABILITY OF PEER-RATING

In order to ascertain some measure of the reliability of the peer-ratings, Pearsonian *r*'s were computed for the five elements of personality showing the highest agreement with self-estimates and the five showing the lowest agreement.

Table 2 shows the results of this analysis when the average ratings of two teachers against two teachers randomly selected were computed and stepped-up by the Spearman-Brown formula. A glance at this table indicates no great differences in the reliability of peer-rating. All achieve statistical significance at the one per cent level of confidence. Of the ten traits herein presented, the only one noticeably lower than the others is tolerance.

TABLE 2.—RELIABILITY OF PEER-RATINGS FOR FIVE HIGHEST AND FIVE LOWEST PEER-SELF CORRELATIONS

Five Variables with Highest *r*'s	Reliability	Five Variables with Lowest *r*'s	Reliability
Persistence	.83	Physical attractiveness	.89
Boring-entertaining	.85	Tolerance	.47
Thoughtfulness of others	.90	Energy and pep	.83
Boisterous-quietness	.91	Egotism	.78
Common sense	.83	Intelligence	.86

CONCLUSION

In conclusion it might be stated that as a group teachers are conservative in their self-estimates on personality variables, that self-ratings and ratings by fellow teachers show a statistically significant degree of relationship on most observable components of personality, and that the findings of the present study do not differ greatly from those of other similar investigations.

True, the final answers to the numerous questions on the measurement of personality are by no means available as yet, but it is hoped that continued research in this vital area will bring nearer the anticipated goal.

REFERENCES

1) M. Amatora. "Boys' personality appraisals differentiate teacher groups." *School and Society*, 76: 184–187, 1952.

2) ——"Children's rating of associates." *Journal of Experimental Education*, 13: 20–22, 1944.

3) ——"Comparability of child and adult personality scales." *Journal of Educational Psychology*, 35: 309–313, 1944.

4) ——"Factor analysis of children's personality scale." *Journal of Psychology*, 18: 197–201, 1944.

5) ——"Reliability of personality scale." *Educational and Psychological Measurement*, 12: 132–136, 1952.

6) ——"The education factor in personality appraisal." *Journal of Experimental Education*, 21: 271–275, 1953.

7) H. E. Brodgen. "A factor analysis of forty character tests." *Psychological Monographs*, 52: 39–56, 1940.

8) C. L. Burt. "The assessment of personality." *British Journal of Educational Psychology*, 15: 107–121, 1945.

9) R. B. Cattell. "The main personality factors in questionnaire, self-estimate material." *Journal of Social Psychology*, 31: 3–38, 1950.

10) ——and D. R. Saunders. "The matching of personality factors in behavior rating, questionnaire, and objective test media." *Journal of Social Psychology*, 31: 243–260, 1950.

11) W. W. Cook and C. H. Leeds. "Measuring the teaching personality." *Educational and Psychological Measurement*, 7: 399–410, 1947.

12) A. E. Ellis. "The validity of personality questionnaries." *Psychological Bulletin*, 43: 385–440, 1946.

13) E. W. Gruen. "Level of aspiration in relation to personality factors in adolescents." *Child Development*, 16: 181–188, 1945.

14) C. W. Huntley. "Judgments of self based upon records of expressive behavior." *Journal of Abnormal & Social Psychology*, 35: 398–427, 1940.

15) E. L. Kelly. "A 36-trait personality rating scale." *Journal of Psychology*, 9: 97–102, 1940.

16) A. H. Maslow, E. Hirsh, M. Stein, and I. Honigmann. "A clinically derived test for measuring psychological security-insecurity." *Journal of General Psychology*, 33: 21–41, 1945.

17) L. L. McQuitty. "Diversity of self-endorsements as a measure of individual differences in personality." *Educational and Psychological Measurement*, 9: 3–14, 1949.

18) M. G. Powell. "Comparisons of self-rating, peer-ratings and expert's-ratings of personality adjustment." *Educational and Psychological Measurement*, 8: 225–234, 1948.

19) A. E. Robertson and E. L. Stromberg. "The agreement between associates' ratings and self-ratings of personality." *School and Society*, 50: 126–127, 1939.

20) R. R. Sears. "Experimental studies of projection. I. Attribution traits." *Journal of Social Psychology*, 7: 151–163, 1936.

21) E. Shen. "The validity of self-estimate." *Journal of Educational Psychology*, 16: 104–107, 1925.

22) R. Stagner. "Wisconsin Scale of Personality Traits." *Journal of Abnormal Social Psychology*, 31: 463–472, 1937.

23) Werner Wolff. *Expression of Personality*. New York: Harper & Brothers. 1943.

ABNORMAL PSYCHOLOGY AS A SELECTIVE FACTOR IN THE COLLEGE CURRICULUM[1]

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In recent years psychologists have shown an increasing interest in the problems and opportunities associated with the teaching of their field. Such interest is revealed directly in articles on the teaching of psychology (*3*, *4*, *15*, *17*, *18*) and is implied in many articles dealing with professional problems (*1*, *6*, *11*). Since World War II, during which clinical psychology made such rapid strides, there has also been an increasing concern over the problem of professional personnel in psychology, with particular reference to the process of selecting students for graduate study who give the greatest promise of competence in the field (*8*).

In addition to the above developments, psychologists have continued to devote their attention to problems of student adjustment. Recommendations have been made as to the function of the psychology program in this connection (*2*, *5*, *7*, *10*). Throughout the field there has been a direct interest in what psychology courses can mean to the student and in those teaching techniques which appear most helpful to him.

In spite of the manifest interest in those educational and adjustment problems which are associated with the teaching of psychology, relatively little attention has been given to the possibility that psychology courses may operate selectively in the college curriculum. Most writers seem to have left untreated the rather special nature of the student group which may be enrolled in psychology courses. If it were found that a psychology course (or courses) contained a selected group of students—drawn by the special nature of psychological study—it would appear that the implications for the teaching of psychology would be worth considering.

Because of the nature of the material considered in abnormal psychology, this course presents an interesting opportunity for

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[1] A portion of this paper was read at the meetings of the Western Psychological Association, Seattle, Washington, June, 1953.

studying the possibility of the selective function of psychology in the undergraduate curriculum. The morbid nature of the material composing the content of this area of study intrigues a large number of students. While it is undoubtedly safe to assume that the students comprising a class in abnormal psychology constitute a heterogeneous group with respect to personality adjustment, the present study was designed to investigate the following hypothesis:

The undergraduate course in abnormal psychology operates as a selective factor in the college curriculum, attracting students who reveal, as individuals and as a group, different patterns of personality adjustment than those revealed by students in non-psychology courses in the curriculum.

SUBJECTS

The subjects of the study were chosen from the enrollment in two undergraduate courses in the curriculum of a small liberal arts college. Group A was composed of ten men and eleven women students selected from a course in abnormal psychology according to the following criteria:[2]

1) The student must not be currently enrolled in any other course in psychology, sociology, or criminology.

2) The student must not at that time be undergoing any psychological or medical therapy.

3) The student must have completed at least two years of college.

The subjects in Group A had a mean age of twenty-two years and a median age of twenty-one years.

Group B was composed of eleven men and eleven women students selected from a modern European history course. The criteria for the selection of the subjects in Group B were the same as those for Group A, the only exception being that none of the subjects was enrolled in any psychology course. The mean age for the subjects in Group B was 20.7 years with a median age of twenty years.

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[2] The criteria for the selection of the subjects were set up in such a manner as to facilitate the study of certain other factors not reported on in the present article.

PROCEDURE

At the beginning of the semester the Rorschach test was administered individually to all subjects in both groups and scored according to the Klopfer system (*9*). In order to derive adjustment ratings which were largely objective and which were sufficiently consistent to lend themselves to intergroup and intragroup comparisons, the Munroe Inspection Technique (*13*) was utilized. A sub-analysis of certain Rorschach scores was made in order to facilitate individual and group comparisons. Of particular importance in this connection was a study of the *erlebnistyp* or introversion-extraversion relationship in each record.

In addition to the above operations, all subjects in both groups were administered a story completion test which was patterned after the Madeleine Thomas Completion Stories Test (*12*) and which consisted of a series of story items dealing with college life. *Typical story items are.—*

a) A student is in college. He writes a letter home. What does he say in the letter?

b) This student answers a question incorrectly in class. In the hall after class another student says to him: "You sure messed that one up, didn't you?" What does he do?

c) The student has been going steady with a certain girl. One night she refuses to go out with him. Why?

The group administration of this test occurred during the second meeting of each of the classes. A theme analysis of the story completion material made possible further individual and group comparisons.

Each subject in Group A and Group B wrote an autobiography at the beginning of the semester. In requesting autobiographical material the experimenter left the situation unstructured, asking only that each subject submit some account of his life. Two methods were used for analysis of the autobiographical material submitted by the subjects of the study. The first was essentially a qualitative appraisal of the autobiographies as background against which other material was viewed.

The second method of analysis yielded quantitative results. In the search for essential differences between groups A and B, the experimenter used the ratings of two outside judges, both of whom were candidates for the doctorate in psychology and had had

extensive clinical experience. Each judge was given a rating scale which the writer constructed using several of the personality variables derived from Murray's (*14*) research with college students. A five-point scale was assigned to each of the following variables: (a) intraceptive-extraceptive, (b) endocathection-exocathection, (c) projectivity-objectivity, (d) succorance-nurturance, (e) dominance-submission, (f) radical sentiment-conservative sentiment, (g) emotionality-placidity, (h) self-love—object-love, and (i) affiliation-rejection. A final item provided space for comment regarding the judge's impressions of recurring themes revealed in the autobiography. The judges were instructed to adhere closely to the description of the variables provided by Murray (*14*, p. 142), and to use such clinical impressions as they might glean from the autobiographical material.

By assigning arbitrary scores to points on the rating scales it was possible to derive mean ratings for the various scales and thus facilitate comparisons between the groups. A further operation involved computing a total 'deviation score' for each subject by summing deviations from the mean for each scale. Ranking the subjects according to the size of this score made possible a rough correlation of the judge's ratings for each group.

RESULTS

The Rorschach records obtained from the subjects in Group A received a total of three hundred eleven checks, according to the Munroe Inspection Technique, while those in Group B received a total of two hundred twenty-five checks. (The higher figure is suggestive of poorer adjustment.) Table 1 reveals the ratio of the difference between the means of the two groups to be 3.33. This

TABLE 1.—SUMMARY OF MUNROE INSPECTION DATA FOR GROUPS A AND B

	Group A	Group B
Total checks	311	225
Range	8–34	6–16
Mean	14.76	10.22
Median	16.00	11.00
SD	5.67	2.70
t	3.33	

reflects a significant difference in mean adjustment scores between Groups A and B at the beginning of the semester's study.

The M:sum C ratio, important in assessment of introversive-extraversive relationships, was computed for each Rorschach record. While other material must be considered in making a final decision as to introversive or extraversive orientation in life, i.e., the quality of M and the way in which color is used in the responses, it may be noted that eleven Group A and ten Group B Rorschachs were weighted toward the introversive side. Although the number of cases in which the ratio was weighted toward the introversive side is approximately equal for both groups, Group A contained six cases in which the weightings were so extreme as to suggest a marked tendency in this direction. Study of the other test material obtained from these subjects indicated that this marked introversive orientation constituted a major problem for them in adjusting to college life.[3]

Further evidence of the significance of an introversive orientation in these six cases is derived from two judges' rankings of all Rorschach records on the basis of degree of introversion manifested. The judges were instructed to study the total Rorschach picture in each case, utilizing all quantitative and qualitative clues available. A rho of .83 was obtained when these two rankings were correlated. The six Group A cases referred to above were ranked within the top eight by one judge and within the top ten by the other.

A sub-analysis of certain Rorschach scores suggested greater anxiety and insecurity in the Group A subjects. A significantly larger number of m, k, and K responses appeared in the Group A Rorschachs (t of 3.07, 3.16, and 3.21, respectively). Klopfer and Kelly (*9*, p. 242) suggest that anxieties do not have a pronounced rôle in the personality picture unless at least three K or k are present in one record. Study of the data revealed five Group A Rorschachs with three or more K or k responses, while only one such record was obtained from Group B.

[3] It is perhaps worth noting that one of these six subjects who received thirty-four Munroe checks at the beginning of the semester, experienced a major psychotic break during the semester and was institutionalized. Another of the six, who received twenty-eight Munroe checks, continued in school during the semester in spite of serious social and academic difficulties climaxed by a panic reaction to a dating experience.

TABLE 2.—FREQUENCY OF OCCURRENCE OF THREE STORY COMPLETION THEMES: ANXIETY, ESCAPE, DEPRESSION

Themes	Group A	Group B	t
Anxiety	29	13	3.32
Escape	24	10	3.27
Depression	29	15	3.30

Although the total Rorschach picture must be considered in order to gain the best evaluation of depressive tendencies, Klopfer and Kelly (*9*, p. 243) have suggested that achromatic responses are indicative of such tendencies if they outnumber bright color responses at least two to one. Eight Group A subjects produced records in which achromatic responses outnumbered the color responses by at least two to one, while such was the case in only two Group B records.

Theme analysis of the responses to the story completion test tends to support the Rorschach findings. Table 2 presents the frequency of occurrence of anxiety, escape, and depression themes in the story completions of Groups A and B. It is apparent from this table that the subjects in Group A produced a significantly larger number of these three themes than did those in Group B. An individual analysis of the story completion tests revealed that seventy per cent of the Group A anxiety themes occurred in the records of six subjects who also produced sixty-four per cent of the escape and eighty-six per cent of the depression themes. Five of these same subjects were to be found in the group of six judged to be markedly introversive on the basis of Rorschach evidence. The Group B anxiety, escape, and depression themes were rather evenly scattered among the subjects.

Study of the test material revealed a high degree of expressed interest in, and concern over, sexual matters on the part of the Group A subjects. This is reflected in the results of the story completion theme analysis in which fifty-six erotic themes appeared in the Group A tests as opposed to thirty for the Group B subjects. Analysis of the Rorschach records for Groups A and B revealed seventeen sex responses in those records obtained from the Group A subjects and only one sex response in the Group B records. The seventeen Group A sex responses occurred in the records obtained from five subjects, four of whom were included

in the group of six that produced most of the anxiety, escape, and depression themes on the story completion test.

The differences between the mean ratings on the personality variable scales were statistically significant on only the succorance-nurturance and self-love—object-love scales, with the Group A subjects revealing a tendency toward succorance and self-love. This difference was largely attributable to the ratings of five of the autobiographies. When ranked on the basis of total deviation scores derived from the ratings, a Spearman rho of .81 was obtained between the judges' impressions of Group A autobiographies and a rho of .58 between their impressions of the Group B autobiographies. While the judges were in relatively close agreement with respect to the degree of deviation of the Group A subjects, their evaluation of the Group B autobiographies showed only moderate agreement. It is worth noting in this connection that each judge volunteered to the experimenter that he felt the Group A autobiographical material was, on the whole, much less difficult to rate than the Group B material due to the fact that the subjects in Group A had written in such a manner as to make personal tendencies much more evident.

The above evidence, plus clues found in personal interviews with the Group A subjects, points up a rather important characteristic of the psychology student. The psychology student, due largely, no doubt, to previous experience in psychology courses, reveals greater frankness in expression of problems related to his more intimate relationships. The study of psychology develops in the student an awareness of the importance of psychological relationships and mechanisms, and while he may not have matured psychologically to the point where he has a great amount of insight into his own personality, he is more disposed to search for reasons back of his behavior than is the non-psychology student.

DISCUSSION

While an analysis of the data produced a significant difference between Groups A and B in mean Munroe scores, as well as in certain areas of the story completion and autobiographical material, a subanalysis of the group data suggests that most of the differences between the two groups can be accounted for in terms of the responses of six of the Group A subjects. In light of the hypothesis governing this study it is legitimate to question whether

the course in abnormal psychology functioned selectively in these six cases. That is, can it be assumed that the measurable differences between Groups A and B are due to the special function of the abnormal psychology course in the curriculum? In this connection it is instructive to note that, on certain preliminary questionnaire material obtained from all subjects, each of the six deviant subjects in Group A indicated that he had enrolled in the abnormal psychology course in the expectation that the course might lead to better personal adjustment. Such was the expressed motivation in two other Group A subjects. This suggests that the abnormal psychology course did function selectively in the curriculum studied, offering to certain students what appeared to be an opportunity for bettering personal adjustment.

Four of the six psychology students who deviated from the rest of the group in test responses were psychology majors. Each of these four indicated an intention to take graduate work in psychology and enter the field professionally. While one must obviously be cautious in making inferences from such a small group, this result suggests that psychology as a field may operate selectively in the college curriculum with respect to personality adjustment. In this connection it is desirable to question whether many such students actually continue in the field. Further, one might question whether such manifest anxiety and insecurity at this stage of development necessarily constitute an unfavorable background for future competency in the psychological field.

The psychology students who stand out from the rest of the Group A subjects appear, as a group, to be anxious, introverted, and preoccupied with their own personal problems. It seems likely that the succorance and self-love revealed in the study may be concomitant features of this general personality picture. It is not clear as yet to what extent these personality characteristics may be present in other psychology students who reveal marked adjustment problems, or whether further research might disclose any common personality pattern. On the basis of evidence now available, the writer has little faith in the possibility that a unique personality will be found in the psychology student. The present study, however, suggests that a core consisting of anxiety, introversion, and a preoccupation with personal problems may be predisposing factors for an interest in some psychology courses.

The psychology student's greater frankness in expression of problems related to his more intimate relationships, seems a characteristic of the Group A subjects as a whole and represents their major point of commonality. This suggests that the study of psychology does have an effect upon the student which goes deeper than a strictly intellectual experience. From the standpoint of mental health it is likely that this development can be regarded as a positive one in the lives of most students. Such increased frankness in recognizing and discussing one's problems may represent an important first step in solving them. However, that nearly one-third of the Group A subjects displayed marked adjustment difficulties would seem indicative of a condition which may be more prevalent in psychology courses than has been supposed. This condition obviously stands in need of confirmation, although the selective function of the abnormal psychology course studied seems sufficiently apparent in this situation as to demand some consideration.

Regardless of whether or not the psychology instructor wishes to teach the abnormal psychology course as an adjustment class, it is probable that most such classes contain a number of students whose needs and expectations are such that problems of personal adjustment will be foremost in their minds. This points to the need for instruction which is sensitive to the basic concerns of the students involved. It has yet to be demonstrated that such sensitivity on the part of the instructor is incompatible with the demand for sound student scholarship.

SUMMARY

1) Analysis of Rorschach records revealed a significant difference in mean Munroe adjustment scores at the beginning of the semester with the psychology students revealing more signs of poor adjustment.

2) An analysis of Rorschach and story completion material suggested greater anxiety, depression, and expressed interest in sexual matters on the part of the Group A subjects.

3) Judges' ratings of autobiographical material revealed a tendency toward succorance and self-love on the part of the Group A subjects.

4) An analysis of test data suggested the possible significance

of an introversive orientation in the lives of the more poorly adjusted psychology students.

5) The psychology student reveals greater frankness in expression of problems related to his more intimate relationships.

6) Most of the differences between the two groups can be accounted for in terms of the responses of six of the Group A subjects who displayed serious adjustment problems.

CONCLUSIONS

1) The abnormal psychology course operated as a selective factor in the curriculum.

2) The results of this study suggest the need for similar inquiries within the curricula of other colleges.

REFERENCES

1) APA Committee on Ethical Standards for Psychology. Section 6. "Ethical standards in teaching." *Amer. Psychologist*, 1951, 6, 649–661.

2) F. K. Berrien, "A new type of elementary course." *Amer. Psychologist*, 1947, 2, 148–150.

3) C. E. Buxton. "The introductory psychology course." *Amer. Psychologist*, 1946, 8, 303–310.

4) ———"Teaching: Have your cake and eat it too?" *Amer. Psychologist*, 1951, 6, 111–118.

5) G. F. Castore, and F. K. Berrien. "A student evaluation of a case method course." *Amer. Psychologist*, 1950, 5, 149–151.

6) R. P. Fisher, and R. P. Hinshaw. "The growth of student interest in psychology." *Amer. Psychologist*, 1946, 4, 116–118.

7) D. L. Grumman, and T. Gordon. "The counseling center at the University of Chicago." *Amer. Psychologist*, 1948, 3, 166–171.

8) E. L. Kelly, and D. W. Fiske. *The Prediction of Performance in Clinical Psychology*. Ann Arbor: Univ. of Michigan Press, 1951.

9) B. Klopfer, and D. M. Kelly. *The Rorschach Technique*. Yonkers N.Y. World Book Company, 1942.

10) A. Magaret, and A. C. Sherriffs. "Personality factors influencing the learning of the first course in psychology." *J. gen. Psychol.*, 1947, 37, 66–77.

11) E. S. Mills. "Defining the field of psychology for the student." *Amer. Psychologist*, 1953, 6, 250.

12) ———"The Madeleine Thomas Completion Stories Test." *J. Consult. Psychol.*, 1953, 2, 139–141.

13) Ruth Munroe. "*Adjustment and academic performance of college students.*" Stanford University: Stanford University Press, 1945.

14) H. A. Murray. *Explorations in Personality*. New York: Oxford University Press, 1938.

15) S. L. Pressey. "The place and functions of psychology in undergraduate programs." *Amer. Psychologist*, 1949, 4, 148.

16) J. W. M. Rothney. "First course in psychology as a guidance project." *J. appl. Psychol.*, 1935, 19, 404.

17) D. Wolfle. "The sensible organization of courses in psychology." *Amer. Psychologist*, 1947, 10, 439.

18) D. Wolfle, et al. *Improving Undergraduate Instruction in Psychology*. New York: The Macmillan Co., 1952.

SHORTHAND STUDY AND SPELLING ABILITIES

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"I was a good speller before I studied shorthand." This is a statement commonly heard from commercial students. The purpose of the present investigation was to determine if the study of shorthand negatively affected ability to spell.

PROCEDURE

Two tests of spelling ability were administered to students enrolled in beginning shorthand classes shortly after the opening of school in September. Both tests were again administered to the same pupils about eight months later. Inasmuch as English is a required course and it could be expected to have some effect on spelling ability, a group of students not studying shorthand was tested at the same times. The tests were administered by the regular classroom teacher. Shorthand students in the English classes at the times of testing were excused during the tests.

Analysis was in terms of change in test scores in the total group of shorthand students as compared to change in the control group of non-shorthand pupils. Because other studies have shown relationships between spelling ability and intelligence (*1*, *2*), it was intended that groups matched on the basis of mental ability should be compared. It was determined that such control was unnecessary in this specific case, however.

The experimental group, as indicated above, consisted of students enrolled in beginning shorthand and in eleventh-grade English at Bladensburg (Md.) High School. This group consisted of sixty-nine persons who took both pre- and post-tests. A group of fifty-eight non-shorthand persons enrolled in the same level English classes was used as the control.

TESTS

The two tests of spelling ability used were constructed by the writers especially for this investigation. Test M was a recognition test consisting of forty-eight multiple-choice items. Each item consisted of a short definition and four possible spellings of a word selected from one of several lists of spelling 'demons'. Separate answer sheets were not used—the examinee indicated on the test paper what he thought was the correct spelling. A recognition test was used because of the belief that an important factor in 'good' spelling is being able to recognize an error.

Test M was in two parts, the words of each part being selected randomly from the longer list. The test was considered to be satisfactory in terms of reliability. As indicated in entries one and two of Table 1, estimated reliability was above .80.

Test R was a recall test of forty-eight items. Each item consisted of a phonetic spelling of a 'demon' and a brief definition of the word. The examinees wrote the word as they thought it should be spelled. Separate answer sheets were not used. The test was in two parts of twenty-four items each—the words were selected in the same manner as for Test M. A recall test of this nature was used because the task it presents was thought to be similar to the task of the shorthand writer who spells phonetically and then

TABLE 1.—CORRELATIONS RELATING TO SPELLING TEST M (RECOGNITION) AND SPELLING TEST R (RECALL)

Variables	r	*N*
1) Test M, Part I vs Part II, Corrected S-B	.82	165
2) Test M, Kuder-Richardson Formula 19	.82	80
3) Test R, Part I vs Part II, Corrected S-B	.90	165
4) Test R, Kuder-Richardson Formula 19	.93	80
5) Test M vs Test R (total scores)	.66	165
6) Test M vs Test R (total scores corrected)	.77	165
7) Test M, Pre-test vs End-test	.97	69*
8) Test R, Pre-test vs End-test	.44	69*
9) Ability (CTMM) vs Test M (total score)	.22	65†
10) Ability (CTMM) vs Test R (total score)	.43	65†
11) Ability (CTMM) vs change on Test M	.03	65†
12) Ability (CTMM) vs change on Test R	.01	65‡

* Shorthand students only.

† All available ability scores.

TABLE 2.—MEANS, SIGMAS, AND DIFFERENCES RELATING TO TWO SPELLING TESTS ADMINISTERED TO SHORTHAND STUDENTS (*S*) AND NON-SHORTHAND STUDENTS (*N*)

Test	Group	*N*	Mean	SD	Diff.	P
M, pre-test	S	69	41.76	3.6	1.25	.01
M, end-test	S	69	43.01	2.5		
R, pre-test	S	69	32.86	7.8	2.72	.01
R, end-test	S	69	35.58	7.2		
M, mean gain	S	69	1.25	3.3	.47	Not sig.
M, mean gain	N	58	1.72	4.6		
R, mean gain	S	69	2.72	4.4	.43	Not sig.
R, mean gain	N	58	3.15	5.5		

transcribes into English. As indicated by entries three and four of Table 1, the test had adequate reliability for the purpose.[1]

Both tests were timed; both parts being timed separately. However, the time limits proved to be ample to allow everyone to attempt every item.

The ability measure used in the early stages of analysis (before it was found to be unnecessary) was the California Test of Mental Maturity. It was the latest test recorded on the student's record card in most cases. Some records did not carry an ability score and others had different tests noted. All raw scores had been converted to IQ's when entered on the record cards.

RESULTS

Entries five through ten of Table 1 present data related to the question of how many spelling abilities were being tested. The coefficient of correlation between the tests was less than perfect, the tests were differently related to the same ability measure, and the relationship between first test and re-test differed in the two measures. The correlation between tests was significantly lower than the reliability of either—beyond the .01 level.

It can also be noted that spelling abilities as measured are positively related to intellectual ability, but not highly. However, as is shown by entires eleven and twelve of Table 1, change in spelling

[1] The persons in both groups taking the first test were utilized in obtaining the reliability data—N equalled 165.

test score, the variable with which we are concerned, was practically unrelated to ability.

Table 2 indicates that the change in spelling score shown by the entire group of shorthand students was statistically significant with regard to both kinds of tests. Because of the zero relationship between ability and change, ability was not taken account of in testing the significance of the differences between the shorthand group and the non-shorthand group. As can be noted from Table 2, the differences between the groups in regard to change in spelling ability were small and not statistically significant.

DISCUSSION

Inasmuch as the relationship between Test M (recognition) and Test R (recall) was too low to permit individual prediction from one to the other, it appears that the possibility of at least two kinds of spelling ability must be recognized. At least in this case, the use of both tests was justified.

It appears from the data presented here, that while the shorthand students made a statistically significant gain in ability during the first eight months they were studying shorthand, this gain cannot be considered as a transfer effect due to the study of shorthand. The same gain was shown by non-shorthand students. It may be that this change was due to the common experience of enrollment in eleventh-grade English, but the present investigation yielded no data to bear upon that question. It should be considered significant that, contrary to common belief, there was no loss in spelling ability associated with the first eight months of study of shorthand.

Although the correlation between mental ability and spelling ability is not, according to this study, as high as has been reported, this particular result is not at too great variance with the earlier findings. Differences might be explained by the size of the groups concerned and the particular measures used. Of importance, however, is the finding that the small gains in spelling ability are unrelated to mental ability; this finding will be checked by an additional study.

SUMMARY

Tests of two spelling abilities (recall and recognition) were administered to high-school students at the beginning and near the

end of the first year of study of shorthand. A control group of non-shorthand students taking the same required course in English took the same tests at the same times. It was noted that at least two somewhat different spelling abilities can be identified. It was further determined that the study of shorthand does not necessarily have a negative effect upon either of the spelling abilities.

REFERENCES

1) Agatha Townsend. "An investigation of certain relationships of spelling with reading and academic aptitude." *Journal of Educational Research*, 1947, 40, 465–471.

2) Edmund G. Williamson. "Mental abilities related to learning to spell." *Psychological Bulletin*, 1933, 30, 743–751.

CONFIGURATIONAL LEARNING IN CHILDREN[1]

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Although a great deal of work has been done by psychological learning theorists on varying methods of stimuli presentation, the vast majority of this work has been with animals. The present study attempts to point out one of the important stimulus variables operating in a standard learning situation when children are used as subjects. Specifically, the present experiment was designed to test the hypothesis that when stimuli are presented simultaneously to children, those situations in which the stimuli are presented contiguously so that they appear as a single perceptual unit or configuration will be more difficult to master than situations in which the stimuli are discrete units.

APPARATUS AND PROCEDURE

The population for this experiment consisted of thirty-four children enrolled in the nursery school and kindergarten of the University of Minnesota Institute of Child Welfare. Fourteen of the subjects were children from the four-year old nursery group, and the remaining twenty came from the five-year old kindergarten class. The mean IQ for the group was 120. (Due to a research program now underway at the Institute some of the children had been tested with the WISC and some with the Stanford-Binet. Since the IQ of the group was obtained only to give the examiner some rough index of the intellectual level of the subjects, the WISC and Binet scores were combined in order to arrive at a group average.)

The apparatus used in the experiment consisted of the following: A large brown screen, two strips of plastic, one blue and the other black, $\frac{5}{8}''$ by $4\text{–}\frac{1}{4}''$, two identical yellow cups, and a number of small plastic toys.

The subjects were divided into two groups designated Configurational and Non-configurational, respectively. Each group had

[1] The author wishes to acknowledge gratefully the coöperation of Dr. John E. Anderson, Director of the Institute of Child Welfare, University of Minnesota, and Dr. Elizabeth M. Fuller, Principal, Nursery School and Kindergarten of the Institute of Child Welfare, University of Minnesota.

seven children assigned randomly from the nursery school and ten assigned randomly from the kindergarten, making the *N* for each group seventeen.

Each subject was called in individually and given the following instructions: "We are going to play a game. I am going to hide a prize, like this truck, under one of these cups. If you point to the cup that the prize is under, you get to keep the prize. Would you like to ask any questions?" A large brown screen was then placed between the subject and the two identical cups.

If the subject was in the Non-configurational group, two strips of plastic, one blue and one black, were placed 6″ apart directly in front of the two cups. These colored strips served as the positive and negative discriminanda for the problem. If the subject was in the Configurational group, the two strips of plastic were placed side by side a little in front of and equidistant between the two cups so that they formed a single perceptual unit whose components provided the differential cues for the solution of the problem. A balanced experimental design was used. The stimuli were shifted spatially according to a prearranged random order in which the same spatial arrangement of the stimuli never appeared more than twice in succession. The criterion for solution was set at eight successive correct choices. If a subject had not solved the problem after forty presentations, the trials were terminated. An introspective report was obtained from each subject at the end of the experimental session.

RESULTS AND DISCUSSION

The results obtained were as follows: the mean number of trials for the Non-configurational group was 24.9 and ten of the seventeen subjects solved the problem. The mean number of trials for the Configurational group was 38.7, and only one of the seventeen reached criterion.[2] A Chi-square was computed for solvers vs. non-solvers. Using Yates' correction for continuity a value of 8.6 was

[2] Of the fourteen subjects who came from the nursery school, only two in the Non-configurational group solved the problem and none from the Configurational group mastered it. Of the twenty subjects who came from the kindergarten, eight from the Non-configurational group and one from the Configurational group reached criterion. The problem appears to have been a little too difficult for most of the nursery-school children. Thus if all the subjects had been from the kindergarten group it seems reasonable to assume that the differences obtained would have been even more striking.

obtained which is significant beyond the .01 level of confidence. Thus the hypothesis concerning the relative difficulty of configurational vs. non-configurational presentation of simultaneous stimuli was confirmed.

Since children, rather than animals, were used as subjects, direct reports could be obtained on the perceptual aspect of the problem. To reproduce these reports verbatim would prove too space-consuming, but in essence they pointed up the difficulty of taking a single perceptual unit and using its components as differential cues. Thus the subjects' introspective analyses also tend to corroborate the objective findings mentioned above.

These findings indicate that in children as well as in animals, the perceptual framework in which the stimuli are presented is often of crucial importance. Koffka (*2*), Kohler (*3*), Tolman (*6*), and other Gestalt and neo-Gestalt psychologists have emphasized this fact which is often overlooked by traditional learning theorists. Bitterman and his associates (*1*), (*4*), (*5*), (*7*), (*8*) have also emphasized the importance of perceptual organization. The author believes that a systematic investigation of this configurational variable as it operates in children's learning would clear up many problems in this area which thus far have failed to yield to conventional experimental attack.

SUMMARY

Thirty-four subjects were divided into two groups. A Configurational group was presented with a simultaneous discrimination problem in which the stimuli to be discriminated were presented as a single perceptual unit. A Non-configurational group was presented with a simultaneous discrimination problem in which the stimuli to be discriminated were presented as discrete perceptual units. The principal hypothesis tested was as follows: when stimuli are presented simultaneously to children, those situations in which the stimuli are presented contiguously so that they appear as a single perceptual unit or configuration will be more difficult to master than situations in which the stimuli are presented as discrete units.

The performance of the Non-configurational group was superior to that of the Configurational group. This fact plus the introspective reports of the subjects was interpreted as giving empirical support to the hypothesis stated above.

REFERENCES

1) M. E. Bitterman, A. D. Calvin, and C. B. Elam. "Perceptual differentiation in the course of nondifferential reinforcement." *J. comp. physiol. Psychol.*, 1953, 46, 393–397.

2) Kurt Koffka. *Principles of Gestalt Psychology*, New York: Harcourt Brace & Company, 1935.

3) Wolfgang Kohler. *The Mentality of Apes*, New York: The Humanities Press Inc., 1951.

4) E. L. Saldanha, and M. E. Bitterman. "Relational learning in the rat." *Amer. J. Psychol.*, 1951, 64, 37–53.

5) D. C. Teas, and M. E. Bitterman. "Perceptual organization in the rat." *Psychol. Rev.*, 1952, 59, 130–140.

6) Edward Chace Tolman. *Purposive Behavior in Animals and Men.* Berkeley: University of California Press, 1949.

7) J. R. Turbeville, A. D. Calvin, and M. E. Bitterman. "Relational and configurational learning in the rat." *Amer. J. Psychol.*, 1952, 65, 424–433.

8) P. Weise, and M. E. Bitterman. "Response-selection in discriminative learning." *Psychol. Rev.*, 1951, 58, 185–195.

BOOK REVIEWS

BRUNO KLOPFER, MARY D. AINSWORTH, WALTER G. KLOPFER AND ROBERT R. HOLT. *Developments in Rorschach Technique. Volume I: Technique and Theory.* Yonkers: World Book Co., 1954, pp. 726.

No book has had more influence on American Rorschach technique—and therefore on clinical diagnostic practice—than the Klopfer-Kelley book of 1942. The present volume is a successor to it in part. A Volume II, on application, is promised. The authors have evidently intended this new book to speak simultaneously to three audiences: to beginners, to advanced practitioners, and to their professional colleagues interested chiefly in research and personality theory.

We have first a handbook for administration and scoring. The didactic chapters are clear, with numerous well-chosen examples. There is a good brief chapter on report writing. Undoubtedly, these chapters fulfill their teaching function. A critic might differ from the authors in some scoring decisions, but in the absence of validation any system for scoring is arbitrary. This manual makes explicit how the Klopfer system is intended to be applied, but of course cannot provide evidence that this set of rules is superior to any alternative.

Throughout the book, a second level is continually evident. These authors are speaking over the heads of students to their professional colleagues, arguing basic issues regarding the Rorschach test. This is especially notable in chapters on interpretation of scores, ratios, sequence, content, and so on. A section on 'theory' covers validation, the relation of Rorschach to contemporary personality theory, and a chapter on Rorschach and ego psychology.

Holt's chapter on personality theories covers briefly the writings of Allport, Rapaport, Angyal, and others, discussing how their theories relate to Rorschach interpretation. Holt succeeds in demonstrating that personality theory makes little contact with Rorschach theory, and the reasons he offers for this are plausible. It was perhaps unwise for him to omit general behavior or perceptual theory, including the works of Miller, Postman, and many others; the relatively mundane and observable constructs of experimental psychology are currently providing an astringent flavor in personality research which Holt's chapter lacks. But his chapter is un-

doubtedly a fair assessment of the extent to which Rorschach elaborations lack grounding in explicit and logical theory. Klopfer seeks to provide theoretical roots by relating Rorschach method to a Jungian ego psychology. The constructs of this chapter float unanchored, far out of reach of any potentially damaging rocks of observable fact.

When the authors take up interpretation and validation, they show a healthy awareness of the criticism heaped on the head of the Rorschacher. Interpretations are no longer advanced as unquestionable truth; instead, each major statement about behavioral correlates of Rorschach scores is labelled a 'hypothesis'. The authors give serious thought to the negative evidence on such matters as the M-creativity relation, and color shock. Moreover, care has gone into the wording of the hypotheses to reduce ambiguity. The favorable impression is extended by the theoretical aspects of Ainsworth's chapter on validation. As an essay on problems of Rorschach validation, it is magnificent. The point of view is inclusive and informed; no previous writing has shown such penetration into the great scientific dilemmas posed by Rorschach hypotheses.

The book's presentations regarding the evidence for Rorschach interpretations are completely unsatisfactory. Nowhere is the paramount question of validity faced head-on. Ainsworth, in treating methods of validation, brings in numerous examples, but she does not provide a systematic review of findings. Her oblique examination of validity leads her to express conclusions regarding validity *en passant*. These casual statements are not an adequate way to deal with the necessary critical questions. Moreover, the chapter gives some impression of special pleading. Studies which have advanced negative evidence are thoroughly criticized. These criticisms are just, and do explain away the evidence in these instances. But Ainsworth cites positive results without comparable criticism, and does not cite studies yielding negative evidence based on sound procedures and logic.

The other place where the authors take a position on validity is the chapter on interpretation. Here, a 'hypothesis' is usually stated with no accompanying evidence. Only fourteen studies are cited in the entire chapter on quantitative determiners. Usually no comment is made as to the degree of support available for an 'hypothesis'. While the authors are in general careful to word their claims regarding validity modestly, the failure to provide a frank

and explicit statement about the presumed validity of each proposed interpretation is most unfortunate.

The authors recognize that negative evidence should be taken seriously, and that it may often be used as a guide in modifying or sharpening a hypothesis. This is true. But the trouble is that neither Ainsworth nor her colleagues considers for a moment abandoning a hypothesis. In twelve years, no element of Klopfer's system has been eliminated. If a study proves that some score does not measure what was claimed for it, the score is retained, and the interpretation is rephrased so that the negative data no longer apply. No one goes to the trouble of testing the modified hypothesis before announcing it. To respond to negative evidence by bringing forth new hypotheses which people are expected to use daily in clinical practice, and for which there is no weight of public evidence, is inexcusable.

While a systematic review of evidence would be required to form a solid judgment, it is the reviewer's impression that a large number of the Rorschach hypotheses are speculative or definitely wrong. This book, by failing to support its hypotheses, strengthens that belief. It would accord well with scientific ethics to abandon the Rorschach test, save in research studies, until such time as the true and the false hypotheses are much better distinguished. It is pleasant to see in such books as these the dawn of a scientific conscience in Rorschach writing. The book as a whole cannot be regarded as a realistic appraisal of the Rorschach, however useful it may be as a *vade mecum* for acolytes.

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CHARLES B. THOMPSON AND ALFREDA P. SILL. *Our Common Neurosis*. New York: Exposition Press, 1953, pp. 210. $3.50

Fifty-three sketches written by associates or followers of Dr. Trigant Burrow in the years 1923–1926, for publication in the house organ of the Mental Hygiene Society of Maryland of that period, is what *Our Common Neurosis* is largely composed of. The book contains a foreword written by Burrow shortly before his death. It also includes a large introductory chapter by Dr. Thompson wherein he attempts to give enough of Burrow's viewpoint to serve as a frame of reference for interpreting the sketches and essays that are included in this book. Essentially, these sketches aim to illus-

trate the community implications in the symptomatology of the neurotic or psychotic patient. Illustrative captions for these sketches are: The Calendar of Conformity; Commercial Panaceas; The Constant Error; Everybody's Lonesome; The World and His Wife; Yesterday and Today. The subject matter is presented in nine chapters, illustrative titles of which are: Effect or Emotional Bias; The Social Neurosis; The Social Image; The 'I'-Persona; Man is a Unitary Organism; Tensional Patterns and Man's Behavior.

The point of view illustrated in these sketches is expressed by Thompson in his introduction, as follows: ". . .behavior imbalances, whether expressed in the reactions of the 'normal' or the 'neurotic', are traceable to conflict within the organism's internal tensional patterns and that this physiological disturbance is common throughout our so-called civilized life. There is no longer ground for any group of individuals to maintain that they must be alcoholics-anonymous or neurotics. All of us—individuals and nations—have a *common neurosis*. Man is neurotic." In his foreword, Burrow warns the reader that he will not find in these sketches and essays "unrivaled examples of flawless literary style" and admits that these "vignettes really provide samples of much inept, adolescent thinking," and that they exemplify the various symptoms which the authors were supposedly observing. So what they really do is give the reader who is interested a chance to obtain a glimpse into what Burrow considers to be the first socio-biological clinic. In this volume the reader will find mentioned everything that is identified with Burrow's way of looking at life and human understanding, and the range includes everything from subjective continuity derived from pre-conscious development, which has been called by Burrow and his associates the primary identification, to the more frequently emphasized concept of theirs; namely, the social basis of consciousness. With many of the conclusions and attitudes that Burrow and his disciples express, many people today will agree. The intention of appealing for human understanding is there in these writings and even more so in Burrow's recent publications, but neither in the techniques and certainly not in the sketches do we obtain a kind of warm understanding that could be helpful to very many. To a good many readers without a background of familiarity with Burrow and related writings, many of these pages are likely to be completely unintelligible and strike them as being scholastic rather than enlightening. But to those who are familiar with the literature and

the times of Burrow and what he was after, these sketches can be of value from the point of view of historical growth of their movement as well as illustrating both discoveries and difficulties in searching by way of phyloanalysis for human insights that can have implications for society at large as well as for individual personality growth.

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W. S. TAYLOR. *Dynamic and Abnormal Psychology*. New York: American Book Company, 1954, pp. 658. $5.50

This book, among other things, attempts to make a special contribution; namely, to present a 'pure' abnormal psychology. It "brings together many of the most important contributions to dynamic and abnormal psychology and organizes them within a framework of concepts of general psychology, developing the concepts according to the data."

For a definition of psychology the author accepts that of William James which he interprets broadly (including behavior and the adjustment of the personality); "dynamic psychology is the psychology of motivation;" and "Abnormal psychology is the psychology of those mental states and of those minds which are relatively far from ideal integration." Apparently we are asked to understand the abnormal in terms of "failures of integration." And we are told that ' "relatively far from ideal integration' is a rough measure, but the most useful measure now available."

By definition the subject matter of abnormal psychology is limited. The subjects dealt with in order in nineteen chapters are as follows: dynamic and abnormal psychology; related fields; historical approach to abnormal psychology; basic concepts; a survey of motivation; special topics of motivation; reactions; connector processes; conflict; dissociation; learning and memory; acquired patterns; the sub-conscious; attention and perception; thought; action and control; suggestion; reactions to stress; and, mental disorders. To these are added an introduction to terms of abnormal psychology, and an index and glossary.

There is a great wealth of material gathered from many sources, with many footnote references, and presented in a very interesting manner. The student is introduced systematically to a wide range of subjects both in general and in abnormal psychology. The ref-

erences include Abercrombie (1833), Tuke (1873), Carpenter (1875), Ribot (1882), and Sidis (1898). The richness of material extends to much of the recent studies though not to quite all that might be desired. The valuable collection is also indicated by the well made index and glossary (subjects and names in one alphabetical order) which includes pages 631 through 658.

The question immediately arises as to how a single criterion of abnormality can be accepted as "the best one available," or even as satisfactory. Many will object to the idea that integration and failures of integration are well enough understood or practically useful for the purpose indicated. And many will certainly consider that other criteria generally discussed and recommended for this very difficult problem are still needed and more fundamentally useful; namely, great deviation from statistical norms, very unusual behavior, inadequate and inappropriate responses, nature, number and degree of maladjustments, harmful or disadvantageous actions, behavior that is inappropriate and not in keeping with one's cultural background, behavior that is detrimental or dangerous to self, and behavior that is potentially or actually dangerous to the welfare of others?

Secondly, the question arises as to whether either teachers or students will be satisfied with a text which omits (by virtue of defintion, or perhaps for any other reason) or treats too briefly, subjects that are commonly found in our textbooks on abnormal psychology, such as, the sub- and supernormal, our increasing knowledge of the epilepsies (including EEG results), behavior problems (including EEG results), drug and alcoholic addiction and related problems, the organic psychoses, psychopathy, and psychotherapy. The mental disorders are limited to one chapter (pp. 556–623). Other texts give four to five times as many pages to these disorders.

The critic may wish that more were included in this volume. But he may also consider the possible contribution to science when an author attempts to develop and to present that which belongs to 'pure' science,—here, a pure abnormal psychology. The making of good definitions and the clarification of concepts are assuredly much of the valuable contribution that can be made to science. Perhaps here is an example. But the sciences have not been considerate of those who have made very careful, delimiting definitions of their subjects; sciences have developed far beyond the limits of puristic

definitions; they have refused to be fenced in. Abnormal psychology may be found not to be abnormal in this respect.

A book is to be evaluated for what it contributes more than for what it omits. This book contributes much. It has a wealth of material collected through many years, and organized painstakingly with much critical advice and assistance. Some of the definitions and classifications will probably not be accepted. But as a text it will be found to be both very interesting and useful. Omitted topics can be brought in by lecture and by supplementary reading. As a reference book, it will open up the best in the various fields of which it treats.

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J. Anthony Humphreys and Arthur E. Traxler. *Guidance Services.* Chicago: Science Research Associates, Inc.

Designed for use in the introductory class in guidance, this book suggests guidance services for the high school and college, with a few references to the elementary-school program. It is one of a series of four texts intended to eliminate unnecessary duplication of content in the training of school counselors.

The guidance point of view is defined as an attitude that aims to help the individual toward self-understanding, optimum use of abilities, adjustment to environment, self-decision, and making his unique contribution to society. Guidance is said to fit in with our fundamental beliefs and to answer some of the pressing needs of modern society.

The authors believe that guidance workers should understand the importance of individual differences, the wholeness of personality, and the self-concept and emotions as they affect learning. A historical sketch reviews some of the early guidance programs in public schools and colleges, the impact of the vocational guidance and testing movements, the work of individuals and national organizations, and developments in six other countries. Although some interesting facts are added to previously published histories, noteworthy contributions of psychology, social case work, psychiatry and the Mental Hygiene and Child Guidance Associations are overlooked. Claims made for the adequacy of elementary-school guidance programs are unsupported and somewhat exaggerated.

Tests are named and some are discussed; hints on records and testing practices are given. Group guidance is described in relation to orientation to school, occupational information, discussion of student problems, study skills information and extra-class activities. Weaknesses and possibilities in the homeroom program are mentioned.

Placement, research, evaluation, follow-up, selection and training of staff, trends and predictions, organization of the guidance program are among the subjects treated. Although group therapy, group leadership, remedial services and personal adjustment counseling are among services recommended by the authors, 'how-to-do-it' information in these areas is scanty in this and other volumes in the series. Orientation and inservice training are suggested, but not thoroughly explored. Educational and vocational guidance and test interpretation are more specifically explained.

Current trends in personnel work are reflected in the authors' student-centered point of view, mention of newer services such as group therapy, and recognition of psychological and sociological factors in student problems. They present an overview of the guidance program and provide a list of some supplementary readings on each subject.

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